

VIP-35

2

PRO-35 MANUAL

BALLANTYNE OF OMAHA, INC.

A SUBSIDIARY OF CANRAD-HANOVIA, INC.

1712 Jackson Street

Omaha, Nebraska 68102

402-342-4444

PRO 35

INSTRUCTION

MANUAL

AND

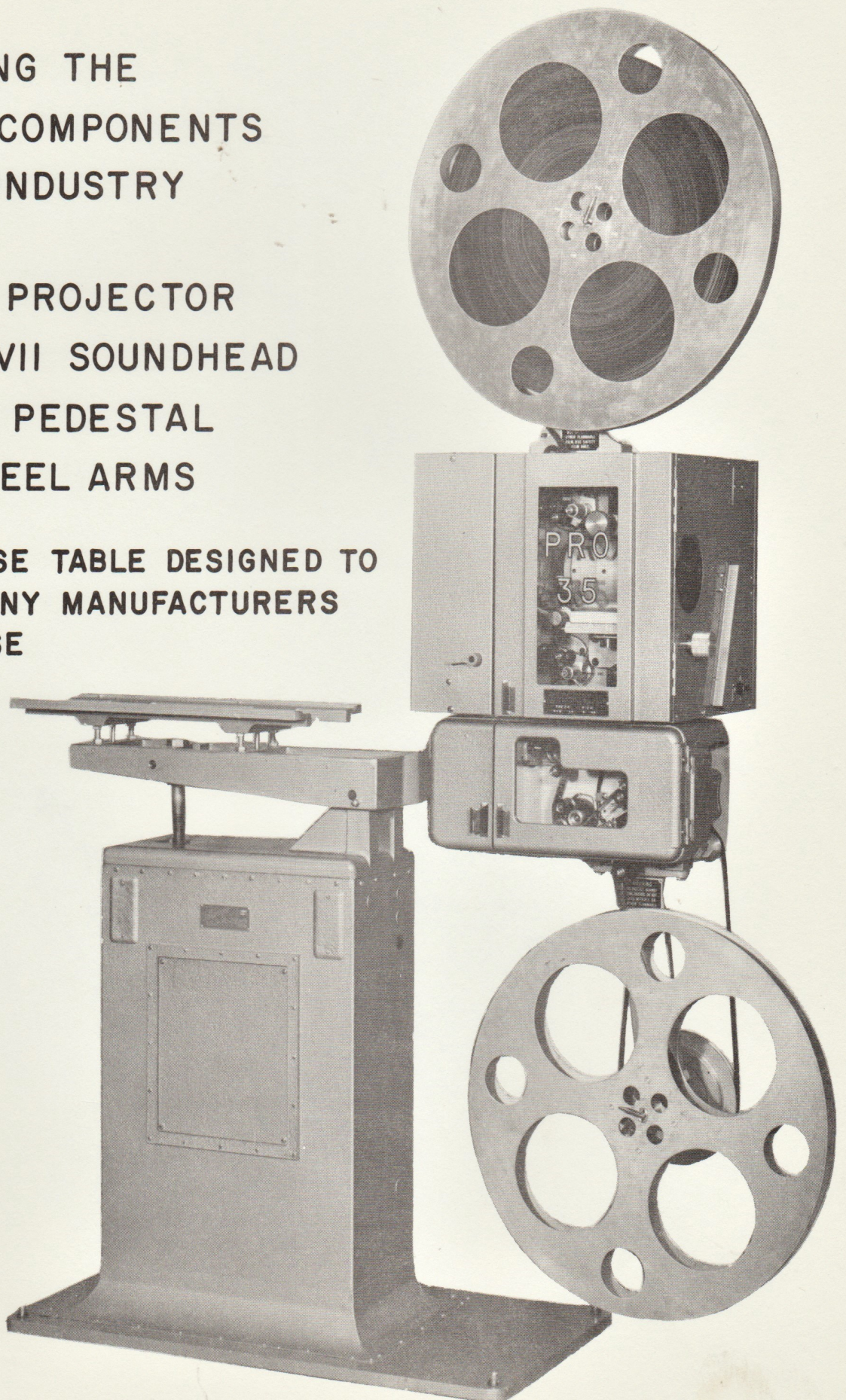
PARTS LIST

PRO-35 PROJECTION SYSTEM

UTILIZING THE
FINEST COMPONENTS
IN THE INDUSTRY

PRO-35 PROJECTOR
MODEL VII SOUNDHEAD
2500-B PEDESTAL
7000' REEL ARMS

LAMPHOUSE TABLE DESIGNED TO
ACCEPT ANY MANUFACTURERS
LAMPHOUSE



PRO 35

DO & DON'T!



BET A BUCK, YOU'LL SAY
"THIS IS A TOOTHBRUSH"!

YOU'RE RIGHT! - YOU'RE WRONG!
SURE

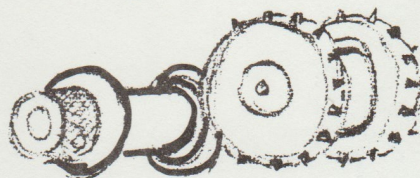
IT WILL DO A GOOD JOB ON YOUR TEETH

BUT

A MUCH BETTER JOB ON **PRO35**

(A) SPROCKET TEETH

(B) PAD ROLLERS



(C) FILM TRAP

(D) FILM GATE

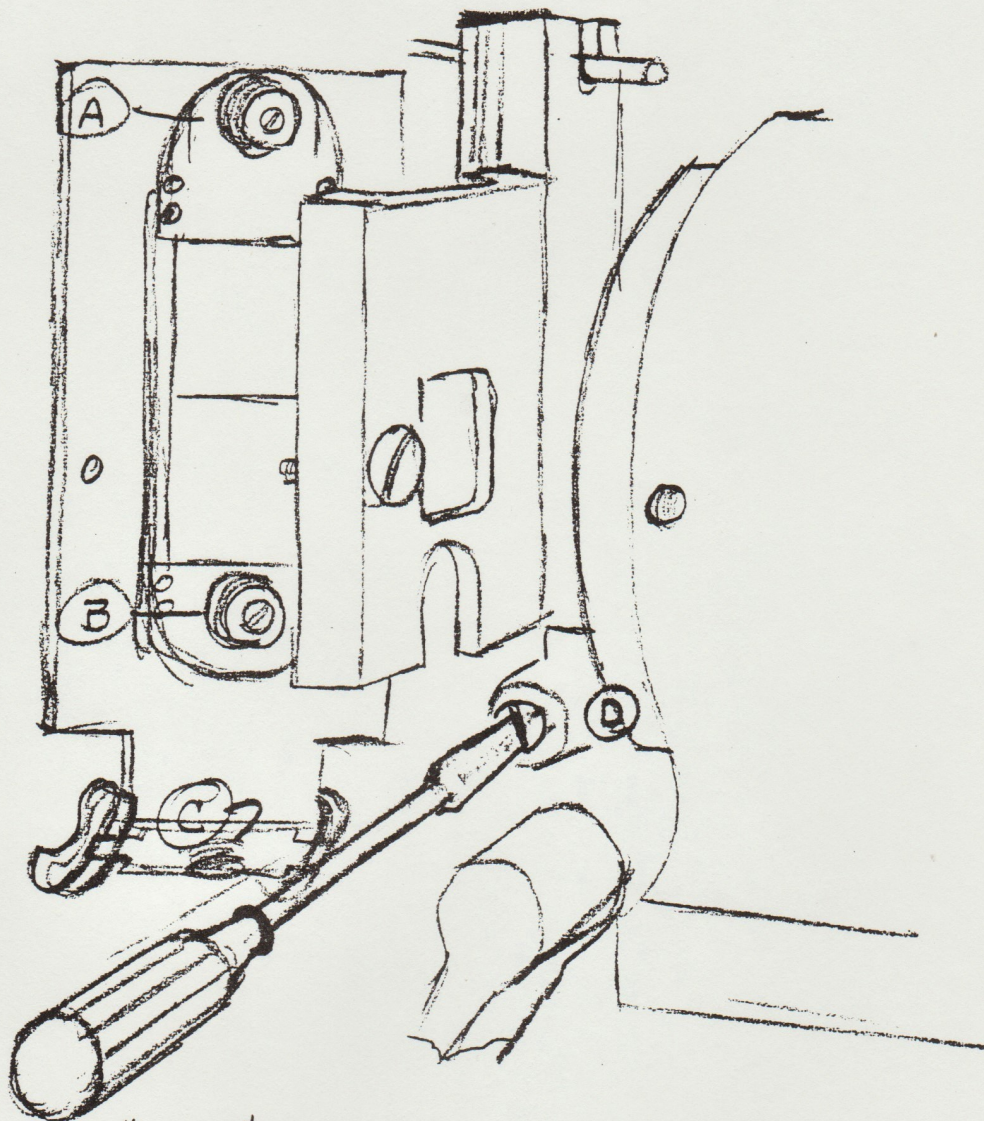
BEST OF ALL - YOU DON'T NEED TOOTHPASTE

TRY IT!

YOU'LL LIKE IT!

P.S. PREVENTS CAVITIES - PREVENTS FILM SCRATCHING

WE ARE REAL PROUD OF OUR
DOUBLE TENSION ADJUSTMENT
ON THE PRO 35 FILM GATE



A-B-C "FINE" TENSION

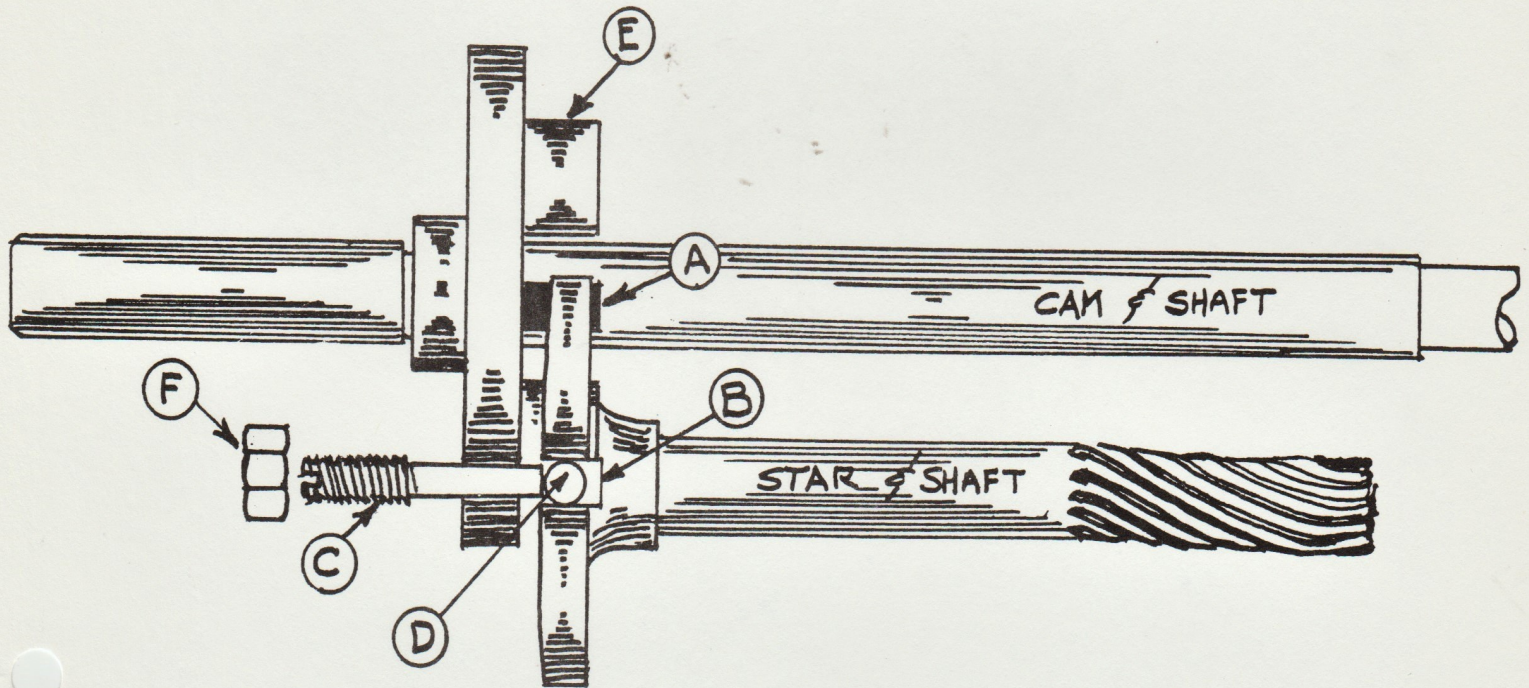
D "COARSE" TENSION - THE PIN AT THE END
OF THE SCREW DRIVER WILL MOVE GATE
TO OR FROM TRAP $\frac{1}{8}$ ".

PIN IS ECCENTRIC AND CAN BE ADJUSTED WHILE
PROJECTOR IS RUNNING !! SEE PAGE 20 OF YOUR
MANUAL - PARTS 2908 - 2999 - 2985 ONLY HOLD 2784
IN PLACE SO DON'T MESS WITH 2985

ACHTUNG!

DAS MACHINE IST NICHT FER GEFINGERPOKEN UR MIT SCREWDRIVER GEPLAYEN. KNOBGETWISTEN MAKE FER SPARKEN UND SPITZEN.

DOS IS NICHT FUR GEWORKEN BY DUMKOPHENS!!



NOTE: POINT A-CAM PIN POINT B-STAR SLOT

IF YOU LOOSEN PIN C AND MOVE STAR SHAFT ← FAR ENOUGH, THE CAM PIN A, COULD STRIKE SHAFT OF STAR AT POINT B.

AT THE FACTORY WE ADJUST HARDENED PIN C TO HARDENED BEARING D TO CORRECTLY ADJUST STAR SO THAT IT RIDES PROPERLY ON CAM SHOULDER E.

WHEN CORRECTLY SPACED AND SEATED, PIN C IS LOCKED WITH NUT F AND A BLOB OF CEMENT PUT ON THE NUT, SO DISTURBANCE IS EASILY NOTICED.

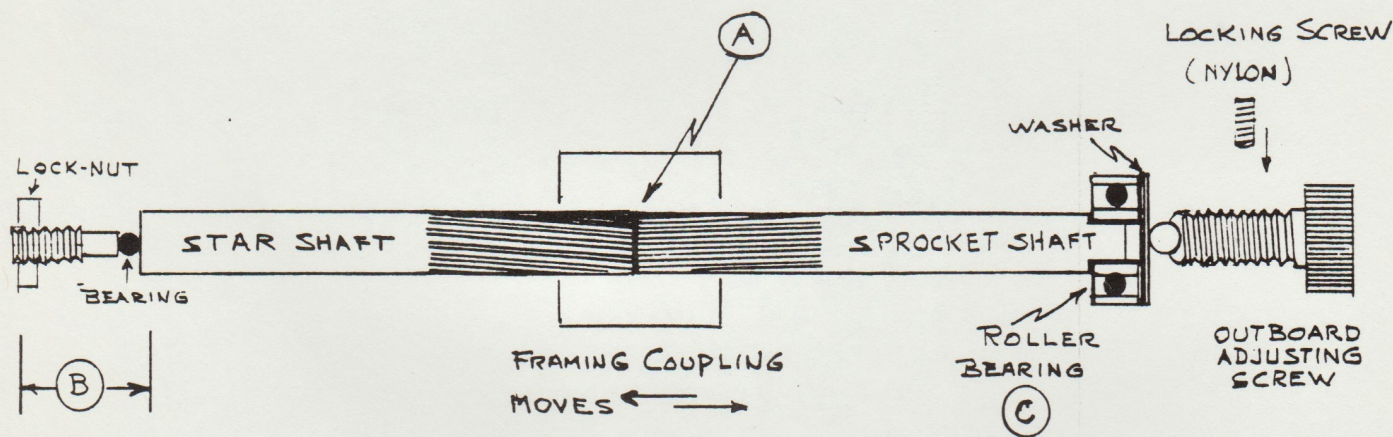
IN BALLANTYNE PRO 35 "DO AND DONT'S", WE SAY "SHOULD NOT BE DISTURBED IN FIELD."

PLEASE-DON'T EVEN LOOK AT PIN "C" OR TOUCH "F"
DON'T BE A DUMKOPH!

OPERATING TIPS =

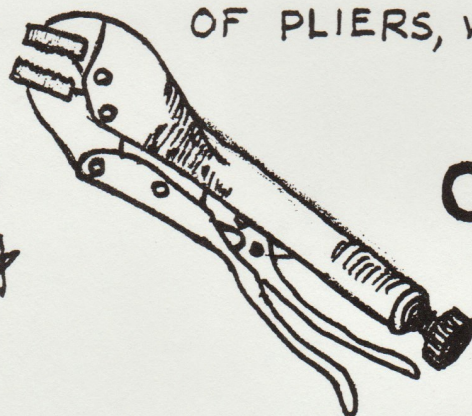
PRO 35 ----- INTERMITTENT

BECAUSE OF ACCESSIBILITY, WE FIND OPERATORS TIGHTENING THE OUTBOARD ADJUSTING SCREW TOO **★!?!@** TIGHT. THIS DAMAGES THE BEARING AND PIN IN AREA (B) - BELOW. IT ALSO CAUSES EXCESS WEAR ON BEARING (C). "JAMMING" ALSO CAUSES MOVEMENT TO TURN MUCH TIGHTER.



THE PURPOSE OF THE OUTBOARD SCREW IS ONLY TO KEEP THE ENDS OF THE STAR AND SPROCKET SHAFTS IN CONTACT AT POINT (A)

LOCK-NUT AND PIN (AREA B) CONTROL STAR RELATION TO CAM AND SHOULD NOT BE DISTURBED IN FIELD.



BE HONEST !

YOU REALLY WOULDN'T WIND
A DELICATE WATCH WITH A PAIR
OF PLIERS, WOULD YOU ?

CERTAINLY

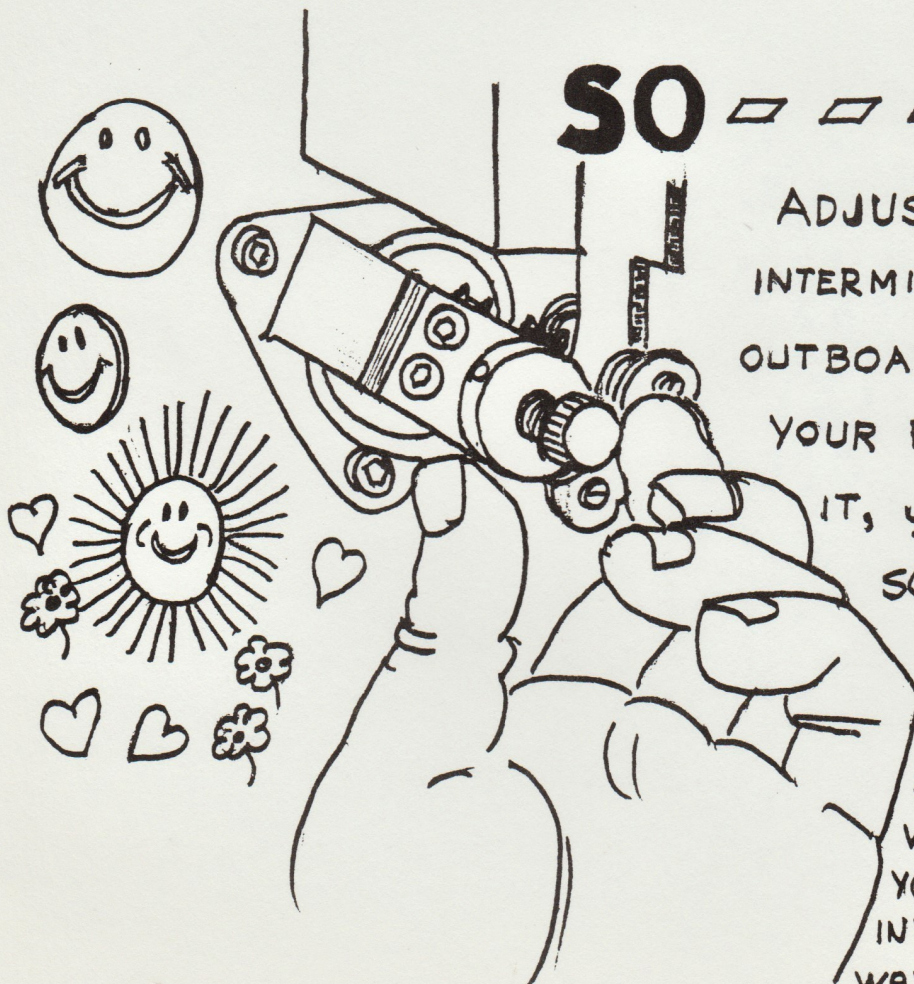
NOT !

SO

ADJUST THE **PRO 35**
INTERMITTENT MOVEMENT
OUTBOARD BEARING WITH
YOUR FINGERS, TIGHTEN
IT, JUST SNUG , JUST
SO THERE IS NO IN-OUT
PLAY IN THE SPROCKET.

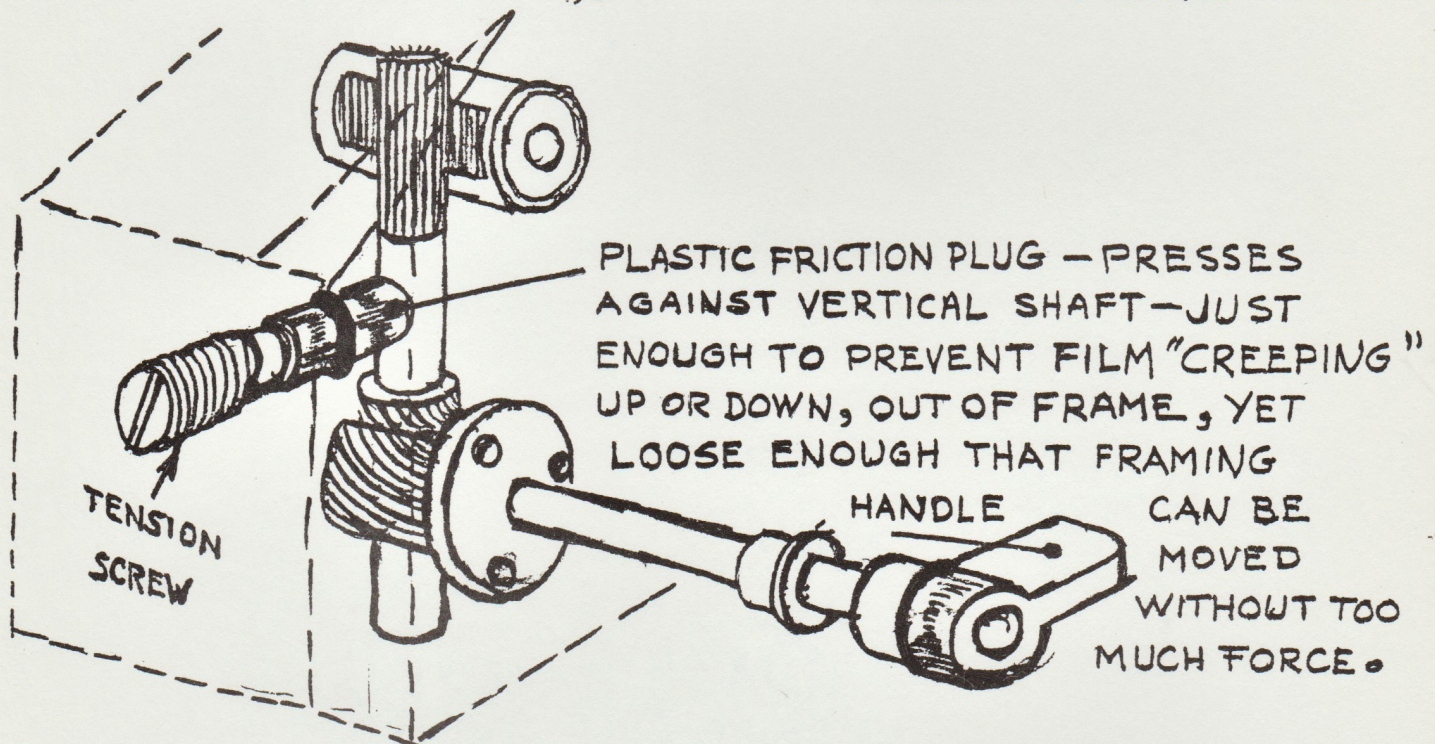
EVERBREAK THE MAIN
SPRING IN A WATCH BY
WINDING IT TOO TIGHT ?
YOU CAN WRECK YOUR
INTERMITTENT THE SAME
WAY- AND THINK--

IT COSTS 10 TIMES MORE THAN A WATCH!!












THE PRO35 HAS A UNIQUE FRAMING MECHANISM - REQUIRES NO SHUTTER COMPENSATION!

LIKE ANY PIECE OF GOOD MACHINERY, IT MUST BE ADJUSTED CORRECTLY, CHECKED OCCASIONALLY. COULD WE X-RAY, IT WOULD LOOK LIKE THIS.



- Ⓐ LIKE BRAKES ON YOUR CAR, THE FIRM HOLDING, "POSITIVELY SOLID" IS A GOOD FEELING TO THE GUY DRIVING.
- Ⓑ THE DRIVER WHO MUST PUSH AGAINST THE BACK OF THE SEAT, PULL ON THE STEERING AND PRESS THE BRAKE LIKE MAD, FEELS HE MIGHT NOT 'MAKE IT, NEXT TIME

DO ADJUST TENSION LIKE Ⓐ    

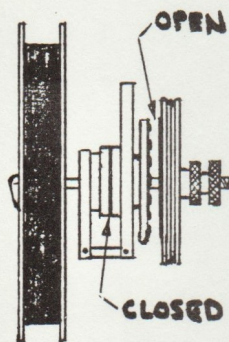
DON'T ADJUST TENSION TO FEEL LIKE Ⓑ     
GRRRR

PRO-35 INFORMATION FROM BALLANTYNE OF OMAHA, INC.

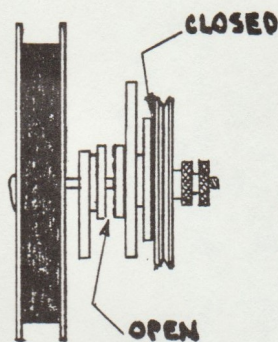
TIPS ON RUNNING PRO-35 IN REVERSE

REMEMBER! IF YOU OPERATE YOUR VIP FORWARD AND REVERSE, YOU HAVE DOUBLE DUTY, 2 FACED, UPPER AND LOWER SPINDLES. EACH SPINDLE MUST RUN AS A HOLD-BACK AND TAKEUP! SO-O-O YOU MUST MAINTAIN 2(TWO) TENSIONS. ANY AMATEUR CAN ADJUST A SINGLE HOLD BACK OR TAKEUP, BUT IT TAKES A PROJECTIONIST TO HANDLE PROFESSIONAL EQUIPMENT.

EACH VIP SPINDLE HAS 2 KNURLED COLLARS FOR ADJUSTMENT
EACH SPINDLE RUNS IN 2 POSITIONS.



HOLD BACK (A)



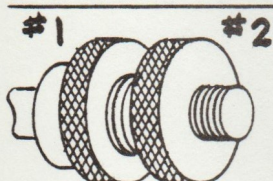
TAKEUP (B)

RUNNING FORWARD - UPPER IS
IN POSITION (A) LOWER (B)

RUNNING IN REVERSE - LOWER
IS POSITION (A) UPPER (B)

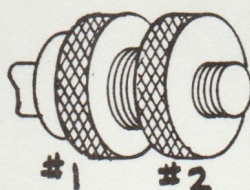
*REALLY QUITE SIMPLE!
RIGHT?? RIGHT!*

SO-O-O ADJUSTMENT OF TENSION IS SIMPLE



HOLD #1
TURN #2 ↺

TO ADJUST HOLD BACK



HOLD #2
TURN #1 ↺

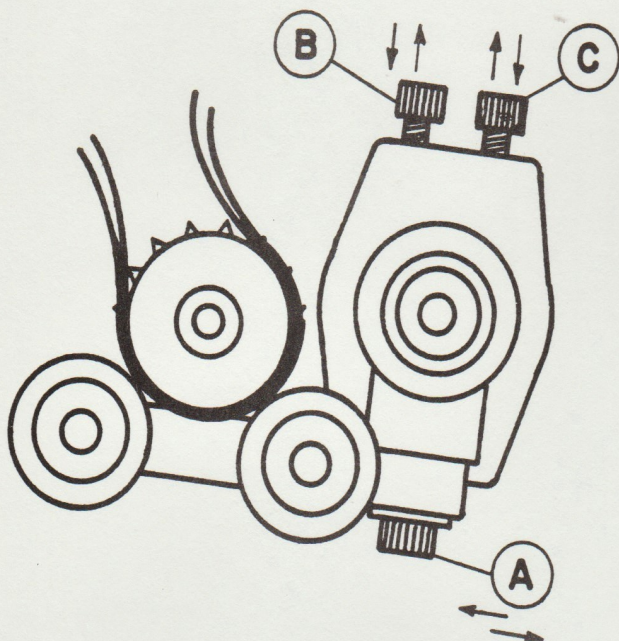
TO ADJUST TAKEUP

NEVER TURN ONE COLLAR
UNLESS YOU HOLD THE OTHER!

CHEERS TO THE GUY WHO DOESN'T READ THIS CAREFULLY

PAD ROLLER ADJUSTMENT FOR PRO-35

THE PAD ROLLERS ON THE PRO-35 ARE ADJUSTABLE ON A HORIZONTAL PLANE AS WELL AS TO AND FROM THE SPROCKET. THE ROLLERS SHOULD JUST CONTACT 2 THICKNESS OF FILM HELD TIGHTLY AROUND THE SPROCKET, FOR PROPER SPACING.

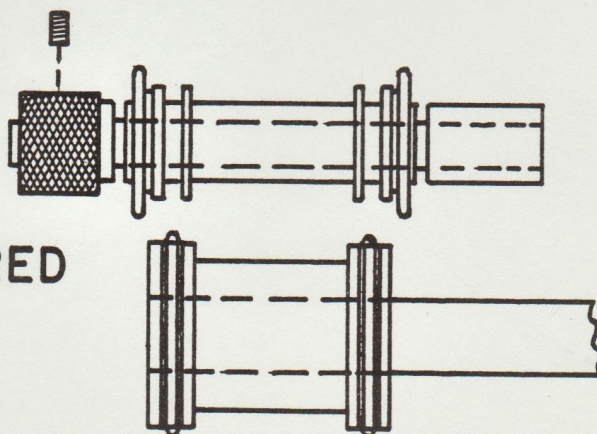


TURN ALLEN CAP SCREWS B & C IN OPPOSITE DIRECTIONS FOR ADJUSTMENT ↓ ↑ TO AND FROM SPROCKET.

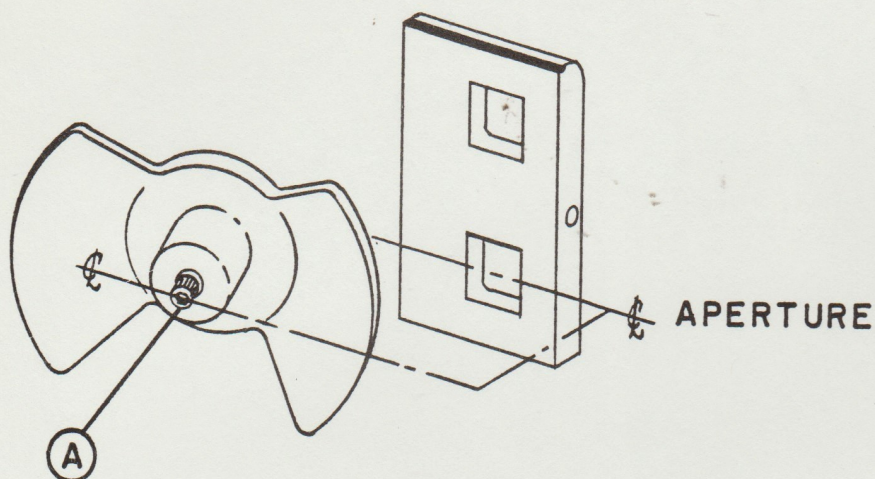
LOOSEN SCREW (A) FOR ADJUSTMENT ↔ TO CENTER ROLLERS ON SPROCKET.

THE SAME PROCEDURE IS FOLLOWED FOR THE LOWER SPROCKET. NOTE SCREW (A) IS ON TOP - (B) (C) ON BOTTOM OF LOWER CASTING.

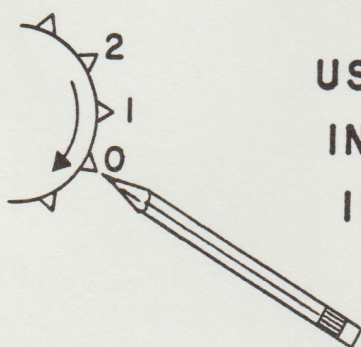
MAKE CERTAIN ROLLER TURNS FREELY & IS CENTERED ON SPROCKET



TIMING SHUTTER



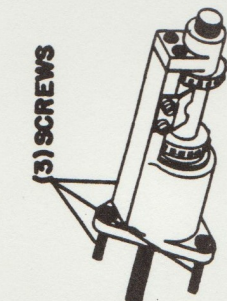
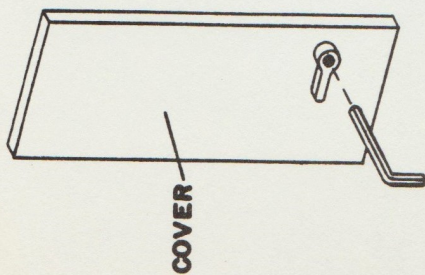
TURN PROJECTOR FORWARD BY MOTOR FLYWHEEL
UNTIL SPROCKET TOOTH #2 IS AT INDICATOR.
LOOSEN SCREW (A) AND TURN SHUTTER SO \perp
OF BLADE IS ON \perp OF APERTURE OPENING.



USE A POINTED OBJECT TO
INDICATE POSITION OF
INTERMITTENT TOOTH WHEN
IN STOPPED POSITION.

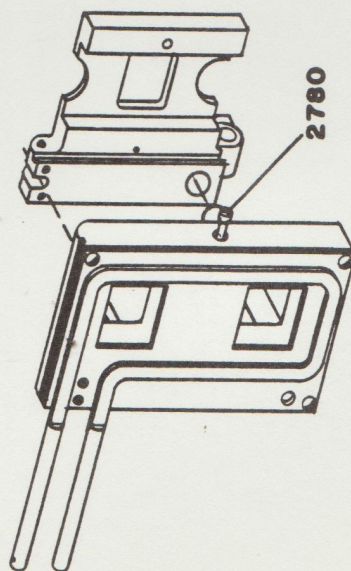
TO CHANGE COUPLING

- ① DRAIN OIL
- ② REMOVE FRAMING HANDLE AND COVER
- ③ REPLACE FRAMING HANDLE
- ④ REMOVE FILM GATE

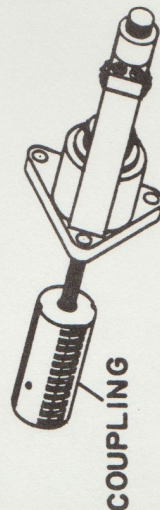


- ⑦ REMOVE THREE SCREWS & SHIELD AND WHILE MOVING FRAMING HANDLE, PULL SPROCKET ASSEMBLY TOWARD YOU.
- ⑧ COUPLING MAY COME OUT WITH SPROCKET ASSEMBLY. IF NOT, TURN FRAMING HANDLE SO COUPLING COMES FORWARD AND REMOVE WITH FINGERS.

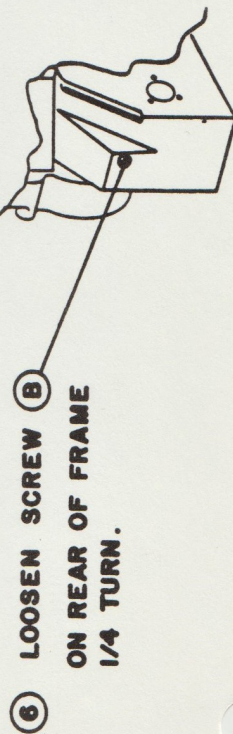
- ⑤ LOOSEN SCREW 2780 AND REMOVE TRAP AND GATE SUPPORT. TRAP IS CENTERED ON DOWEL PINS AND REQUIRES REASONABLE PULL TO REMOVE.



- ⑨ TAKE CAREFUL NOTICE OF THE END OF THE COUPLING AND PUT IT BACK ON THE SPROCKET SHAFT, EXACTLY AS IT CAME OFF. DO THIS SEVERAL TIMES TO GET THE "FEEL" OF THE FIT.
- ⑩ PUT THE COUPLING ON THE SPROCKET SHAFT AND PUSH BACK IN FRAME. ROTATE SPROCKET BACK AND FORTH TO ALIGN SPLEEN TO STAR SHAFT SPLEEN. IT WILL GO ON SHAFT WITH SAME "FEEL" AS ⑨ ABOVE. MAKE CERTAIN RACK TEETH FACE SHUTTER AND ARE VERTICAL.

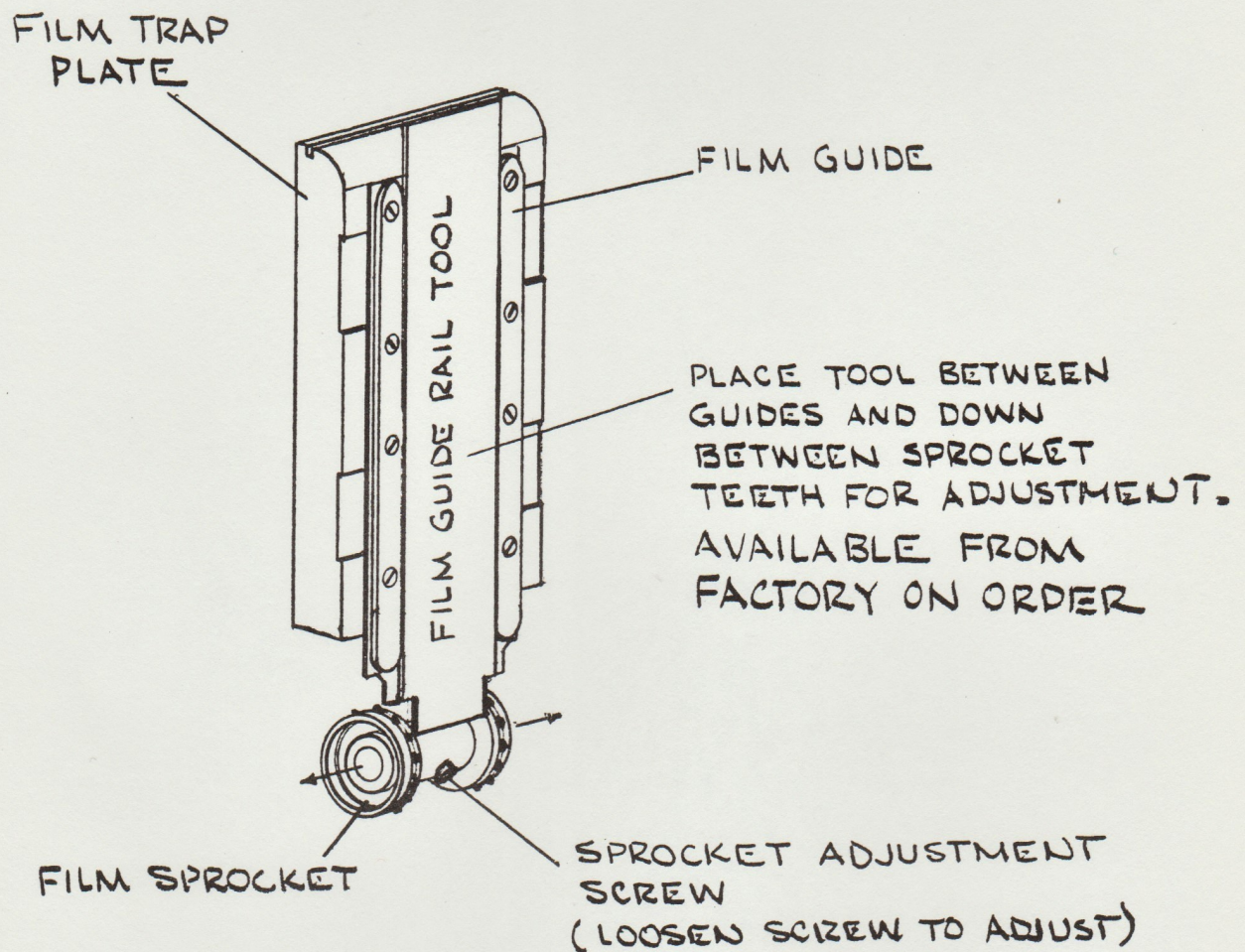


- ⑪ REPLACE ALL SCREWS AND REMOVED PARTS.
- ⑫ TIGHTEN SCREW (B) SO FRAMING HANDLE IS SNUG.

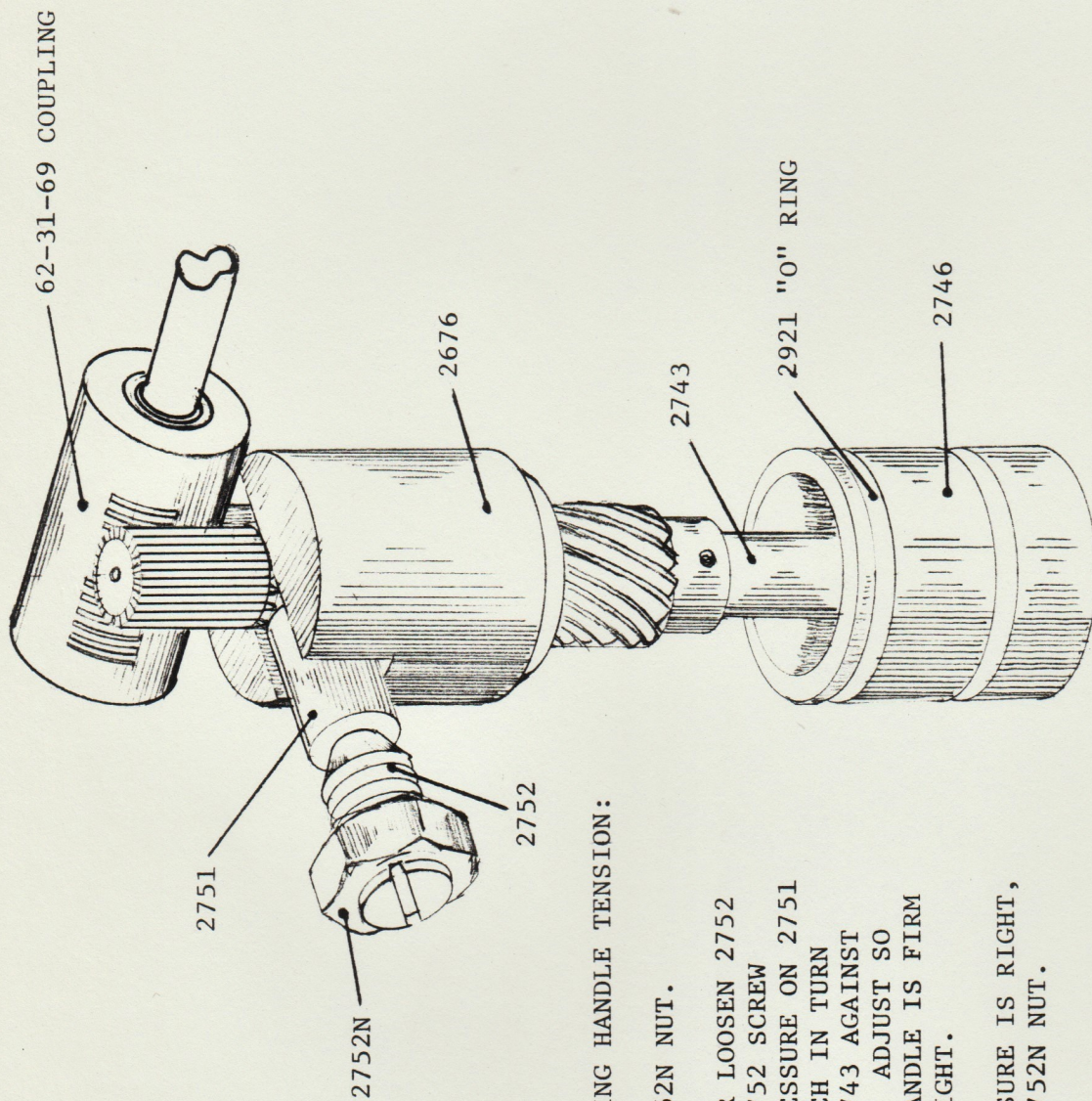


RE-TIME SHUTTER — SEE INSTRUCTION SHEET ON SHUTTER TIMING

INTERMITTENT SPROCKET ALIGNMENT GUIDE



DON'T TRY TO CHANGE INTERMITTANT
SPROCKET WITHOUT THIS GUIDE



TO ADJUST FRAMING HANDLE TENSION:

- A LOOSEN 2752N NUT.
- B TIGHTEN OR LOOSEN 2752 SCREW. 2752 SCREW CAUSES PRESSURE ON 2751 PLUG, WHICH IN TURN PRESSES 2743 AGAINST COUPLING. ADJUST SO FRAMING HANDLE IS FIRM BUT NOT TIGHT.
- C WHEN PRESSURE IS RIGHT, TIGHTEN 2752N NUT.

VERTICAL FRAMING SHAFT & INTERMITTENT COUPLING

F O R E W O R D

The PRO-35 is a modern mechanism, streamlined and designed for a long life of unequalled performance. It continues the high standards maintained in Royal Soundmaster products throughout the years. The projector was primarily designed to work with the Ballantyne Model VII Soundhead, but is compatible with any other standard United States manufactured soundhead.

The main frame is designed for ruggedness and simplicity. All driving gears are contained within the main frame and submerged in oil. No gears are visible on the drive side of the projector. The mechanism has been designed with roominess for ease of threading, operation, service and cleaning. The projector, designed for long life carries an unheard of five year warranty on the mechanism with the exception of wearing film parts. As a result of the modern design, film wearing parts can be removed and replaced quickly. Component parts can also be replaced with equal ease.

Highest efficiency is obtained by the unique conical shutter positioned close to the aperture for maximum light efficiency. Apertures are easily replaced for any ratio. Lens holder is designed to accept 4" diameter and 2 25/32" diameter lenses with complete pre-focusing facilities. Lens mount is of heavy rugged cast iron construction to add weight and bulk for positive anchorage and elimination of any frailty. The lens carrier is mounted on its base with a double V lens slide with a micro lens focus adjustment. A unique changeover system is a built-in part of the projector.

These are only a few of the salient features of the PRO-35 projector. In order that all the many features of the PRO-35 may be fully realized, we recommend that the following instructions be studied carefully so that you have a thorough knowledge of this precision mechanism. Sprockets, pad rollers and wearing film parts are extremely easy to replace. Cleanliness is the only maintenance required.

The intermittent movement is of heavy construction with a large star and cam. Adjustment between the star and cam is accomplished by eccentric bushings easily adjusted. This service no longer requires the services of a skilled, experienced mechanic. The intermittent is driven by a small motor and the soundhead is driven by the projector, the reverse of drives presently used. Framing is accomplished by moving the intermittent sprocket with a delron spiral coupling completely free from the shutter. With this unique method, no other compensation is needed when the picture is framed which completely eliminates shutter adjustment knobs to remove travel ghost from the screen.

The film gate and trap are unique. They are made as an assembly and can be removed as an assembly, thereby eliminating the necessity of adjustment to keep the gate in perfect alignment to the trap. Though the film gate is a part of the trap assembly, the gate is easily removed by means of one screw for ease in cleaning. The film shoes in the trap can be adjusted for tension while film is being run. The opening and closing mechanism for the film trap incorporates a cam adjustment and can be adjusted while film is running for exact distance and tension of the gate from the trap.

On the main frame, an oil drain is easily accessible so that oil could be drained in case of service, but the manufacturer recommends that oil never be changed in the projector. The unique design of this PRO-35 never requires oil or grease.

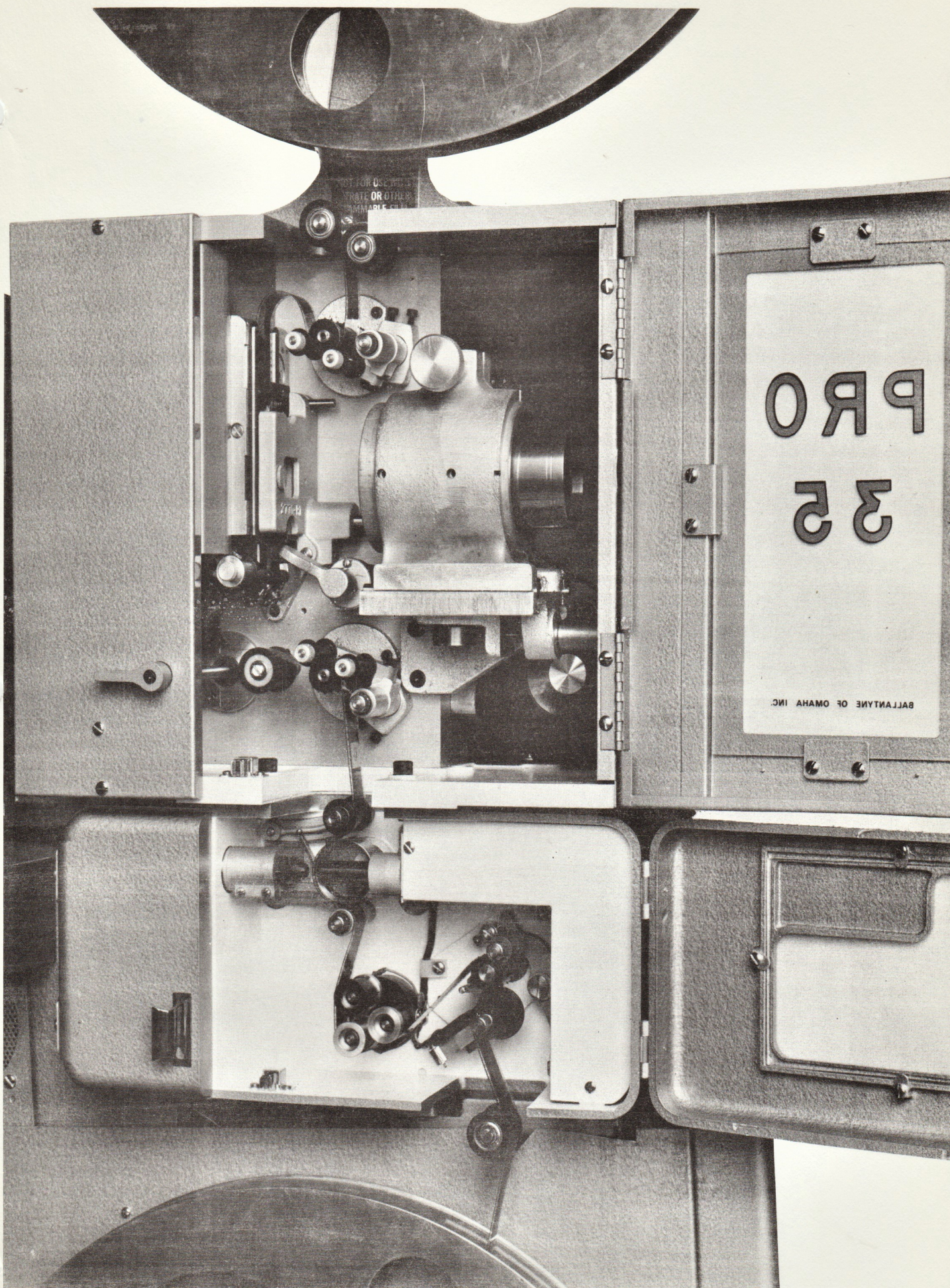


FIG. 2

INSTALLATION

Each projector is carefully inspected and tested before leaving the factory and unless subjected to particularly severe handling during shipment or installation, should be in perfect operating condition.

The projector has been filled with oil at the factory and unless there are signs of oil having been spilled during shipment, it is not necessary to add any oil.

UNPACKING

The projector has been bolted to the base of the shipping crate. Unscrew bottom of case, set on the two 2 x 4 skids, lift wooden case from projector. Tilt 45° and remove two holding screws.

ACCESSORIES AND TOOLS

The following are furnished with each pair of projectors:

1. 5/32" Allen Wrench
2. 9/64" Allen Wrench
3. 1/4" Allen Wrench
4. 5/16" Allen Wrench
5. 3/16" Allen Wrench
6. 3/32" Allen Wrench
7. 5/64" Allen Wrench
8. 1/8" Allen Wrench
9. Apertures
10. Two Lens Adaptors
11. Six Framing Lamps

MOUNTING

1. On Ballantyne Model VII Soundhead, mount the Projector on top of the Soundhead. No mounting bars, pans or adaptors are necessary. On the film side of the Projector, line up the three holes in the base plate of the Projector with the three holes in the Soundhead and anchor with 3/8" Allen Screws supplied. (See Fig. 2)
2. On all other Soundheads place Projector on Soundhead and align the two threaded holes on the drive side of the Projector with the two holes in the Soundhead. (See Fig. 3) Insert 3/8" Allen Screws from Soundhead into Projector and tighten. No alignment other than above is necessary. Do not use oil pans, adjusting bars or any other items supplied with Soundheads.
3. For various Projector Drives from Soundheads other than Ballantyne Model VII, see Projector Drive Assemblies.

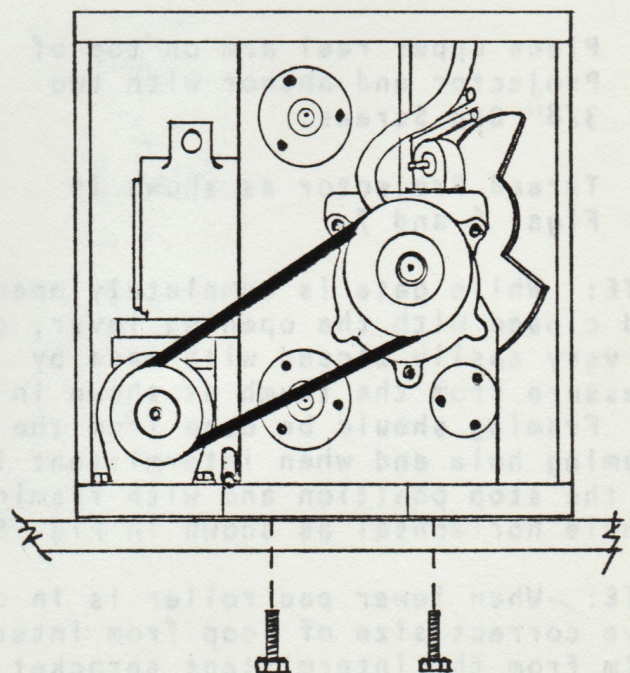


Fig. 3

For assembly of PR0-35 Projector,
Ballantyne Model VII Soundhead
and Ballantyne Pedestals.

1. Attach Model VII Soundhead to Pedestal with two 3/8" Hex Head Screws and Washers as shown in Fig. 4. Do not tighten.
2. Insert two lower 3/8" Hex Head Screws and tighten lower and upper screws. The lower screws will force correct horizontal alignment. (See Fig. 4)
3. Attach lower magazine cabinet to Soundhead and anchor by two 3/8" x 1" Allen Screws to the two threaded holes in Model VII Soundhead. (See Fig. 4)
4. Anchor lower take-up and take-up arm to bottom of Soundhead with 1/4" Allen Screws. (See Fig. 5)
5. Anchor front of lower cover to take-up assembly with the four 8-32 Bind Head Screws.
6. Install take-up belt. (See Fig. 5)
7. Tighten take-up belt with idler pulley. (See Fig. 5)
8. Place upper reel arm on top of Projector and anchor with two 3/8" Cap Screws.
9. Thread Projector as shown in Figs. 6 and 7.

NOTE: While gate is completely opened and closed with the opening lever, gate is very easily closed with ease by pressure from the thumb as shown in Fig. 7. Framing should be done from the top framing hole and when intermittent is in the stop position and with framing handle horizontal as shown in Fig. 6.

NOTE: When lower pad roller is in open position, it will automatically give correct size of loop from intermittent sprocket by merely taking the film from the intermittent sprocket under the pad roller over the sprocket and closing pad roller.

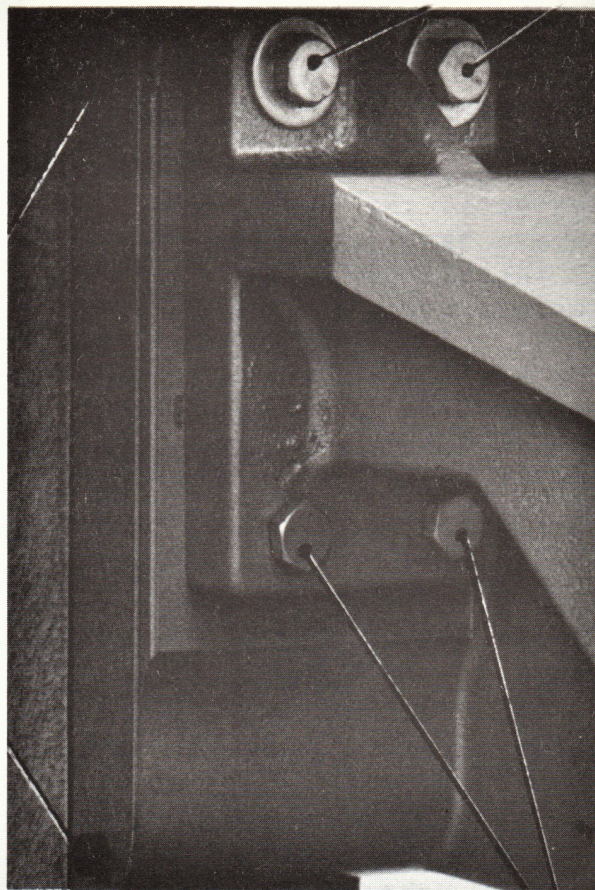


FIG. 4

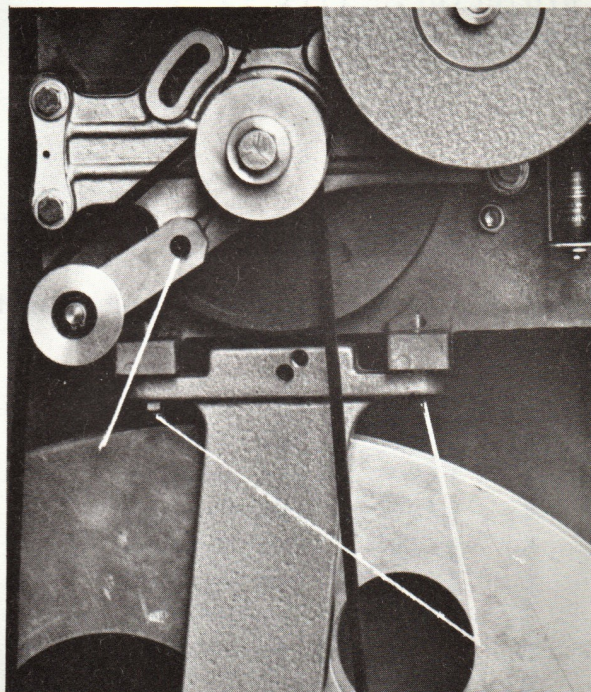


FIG. 5

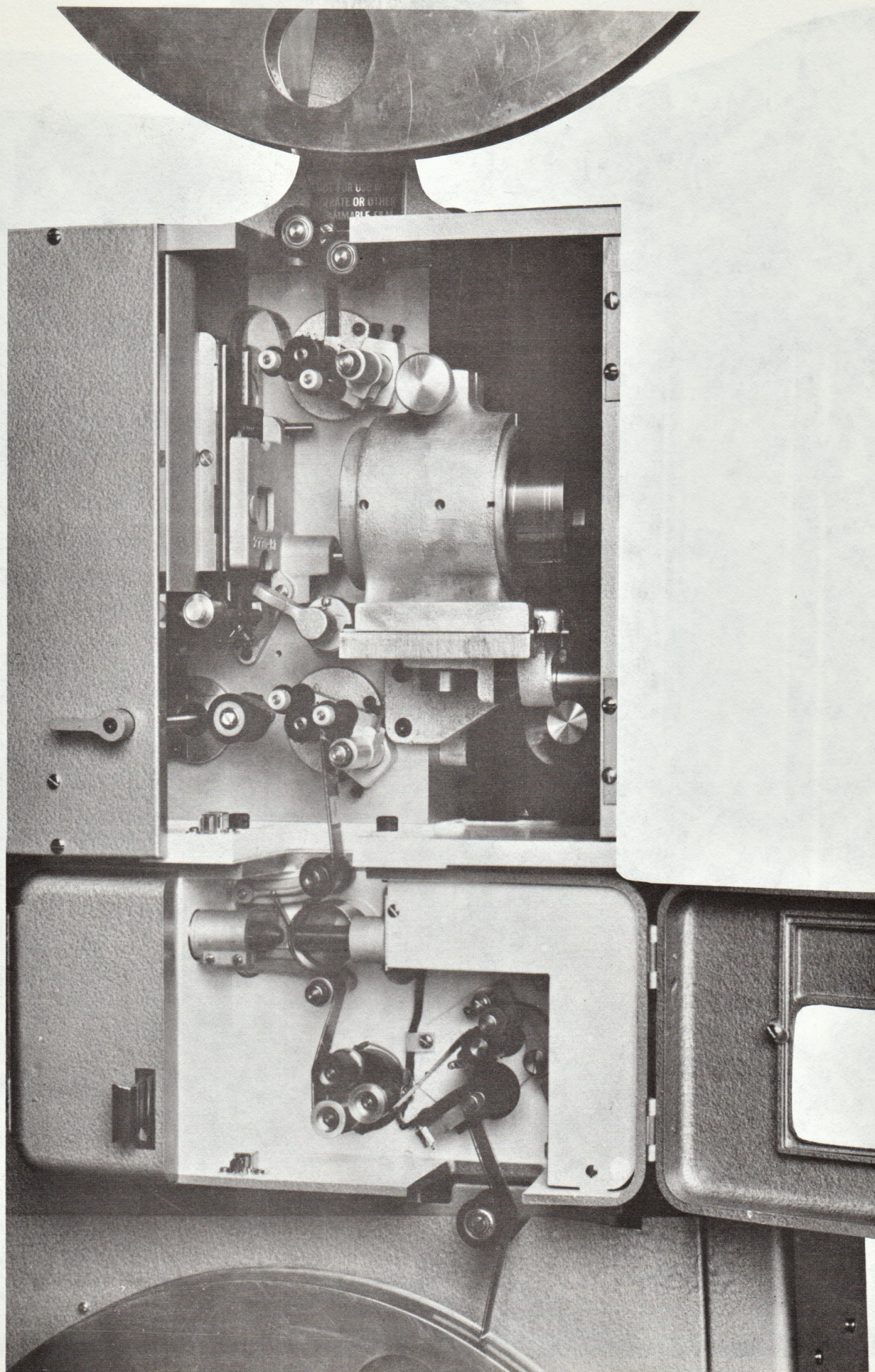


FIG. 6

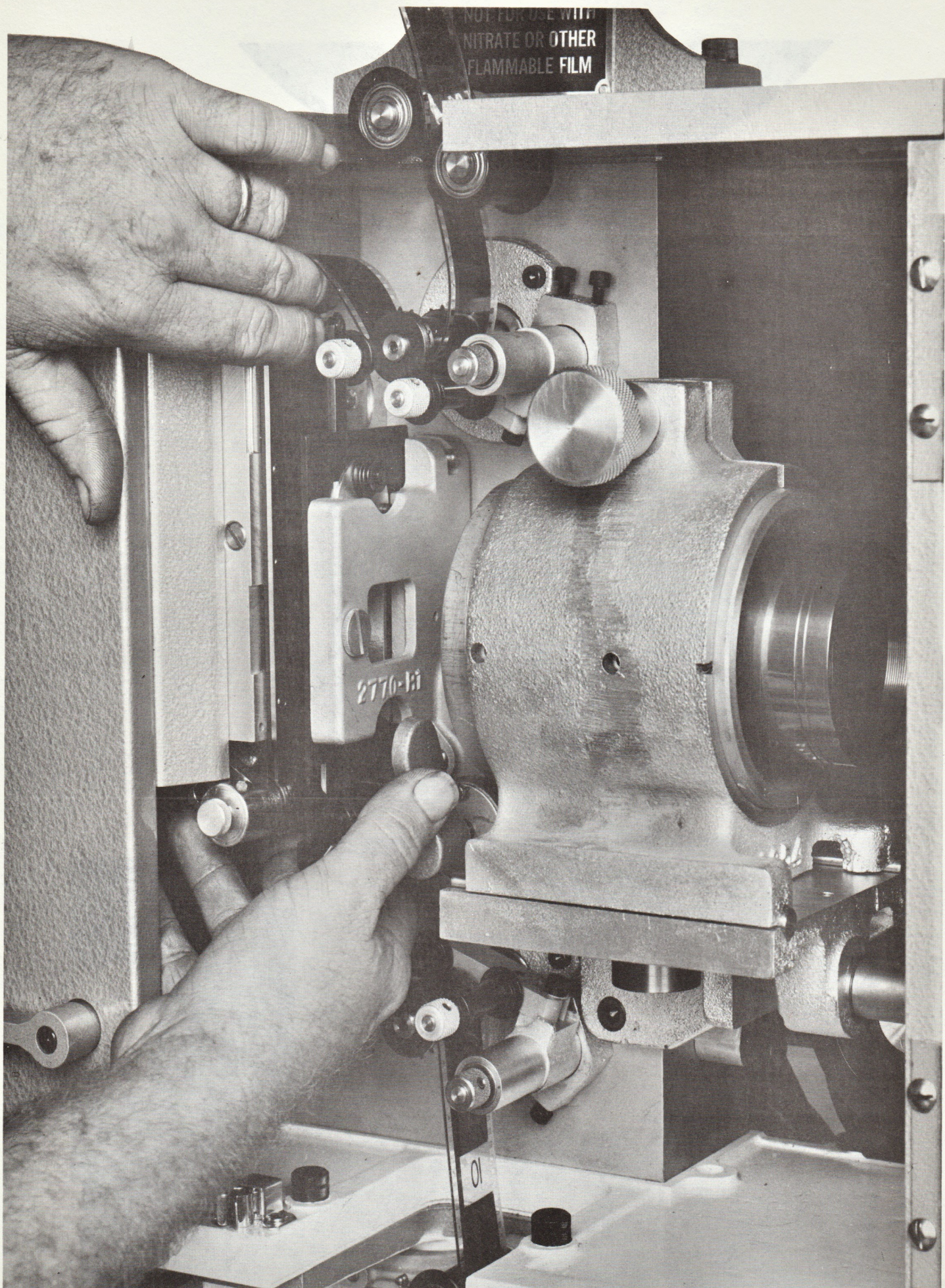


FIG. 7

TO INSTALL LENS

1. Each PRO-35 Projector is supplied with two lens adaptors (See Fig. 8). Insert lens adaptor in lens mount making certain that the pin on the lens adaptor fits into the guided slot in the lens mount. In this position, an Allen Set Screw will be in direct line with the hole in the lens mount so that lens can be anchored.
2. Focus picture on screen and when using anamorphics, make certain that picture is horizontal as well as in focus. When picture is completely focused, tighten lens anchor screw with Allen wrench supplied.
3. Remove lens and tighten the other three Allen anchoring screws.
4. Repeat this procedure for Wide Screen lens making certain that you do not disturb lens focus knob.
5. From this point on, going from Wide Screen to Cinemascope or reverse, is a simple matter inasmuch as either lens will be in focus as soon as the pin in the lens adaptor fits into the slot of the lens mount.
6. The lens mount should be in a center position when first installing lens.

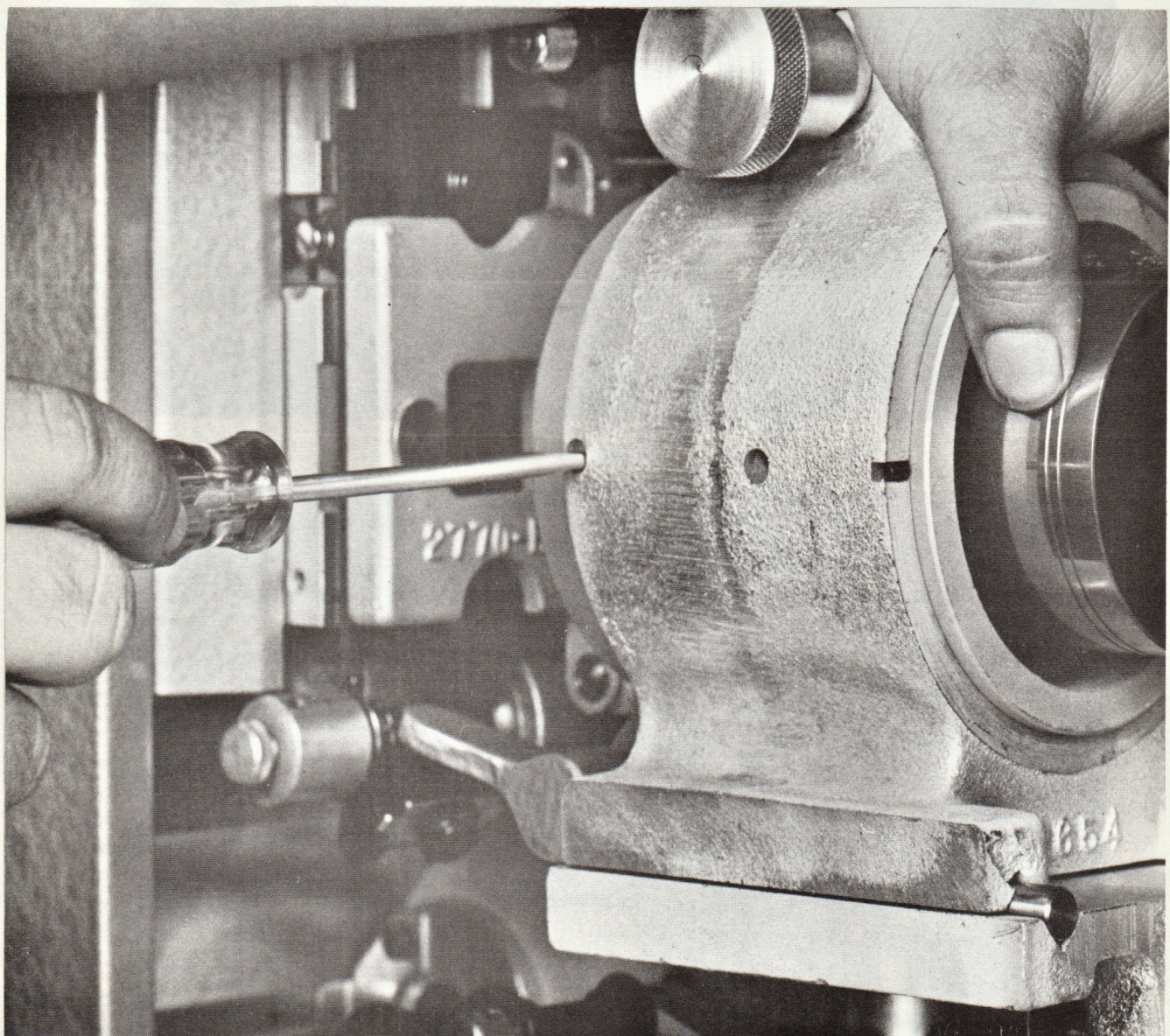


FIG. 8

FILM TRAP AND FILM GATE

Film trap and gate are easily removable inasmuch as the gate is an integral part of the trap. It should be removed occasionally and cleaned thoroughly. Easy access makes it possible to clean the trap and gate with a toothbrush at regular intervals. To remove trap and gate, simply loosen Screw No. 2780, Fig. 9 and pull forward.

Film gate is easily removed with trap anchored or free. To remove gate without removing trap, loosen Knurled Screw No. 2837, Fig. 10, and slide gate out. Gate is located in a milled slot of the gate mounting assembly No. 2770, Fig. 10. To replace gate, place on gate carrying bracket, insert into milled slot and re-tighten Set Screw No. 2837, Fig. 10.

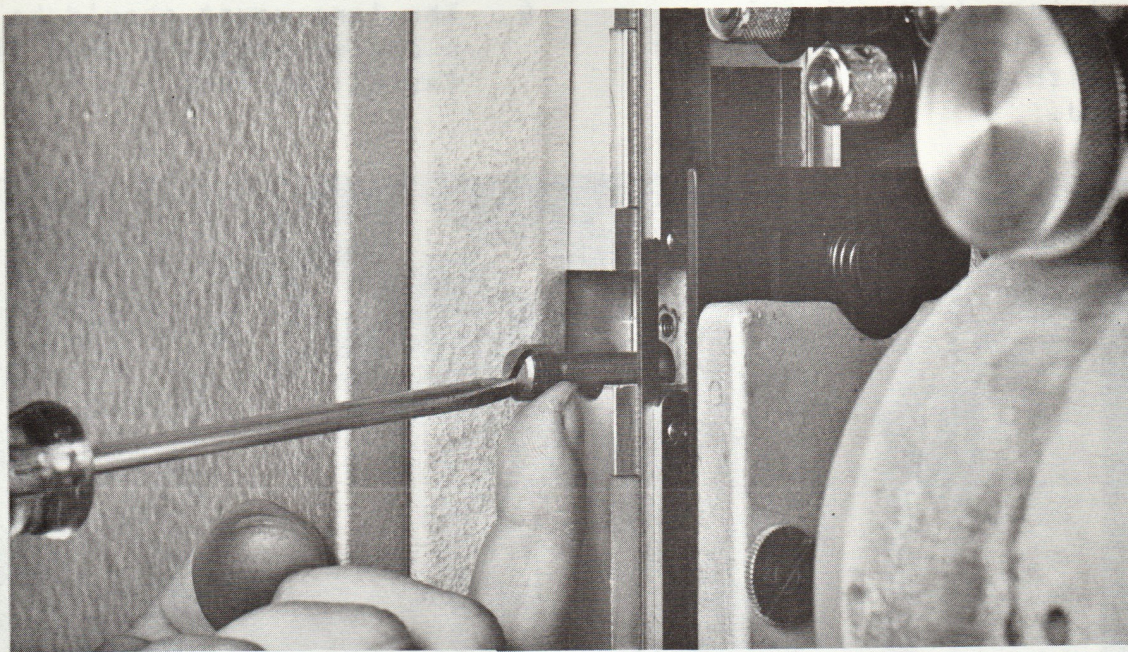


FIG. 9

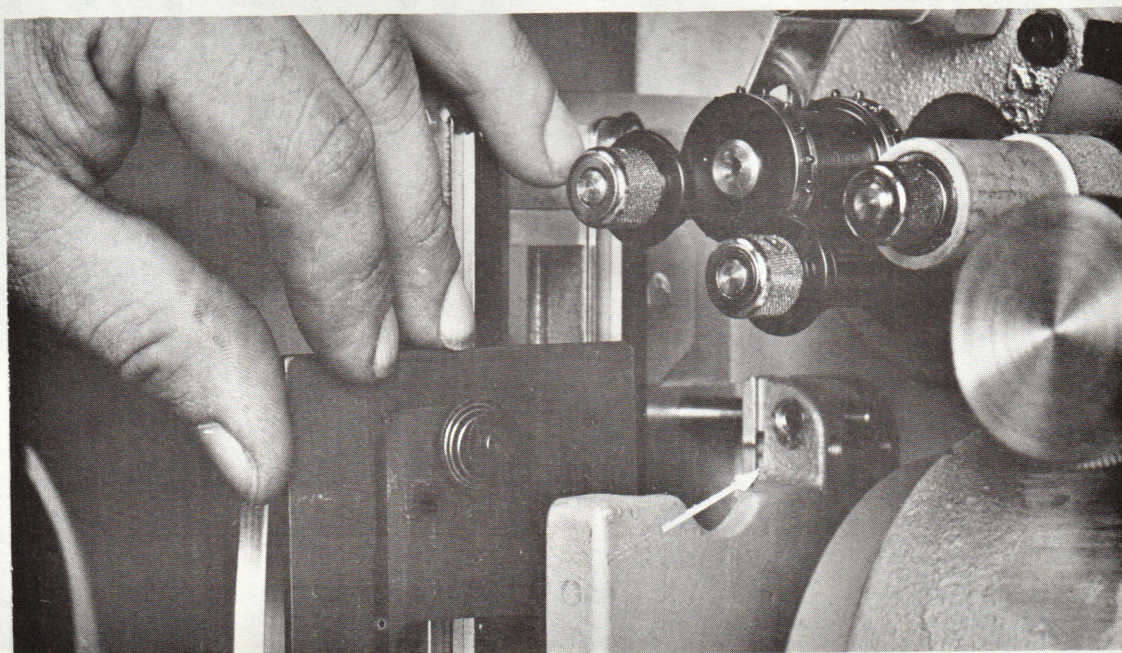
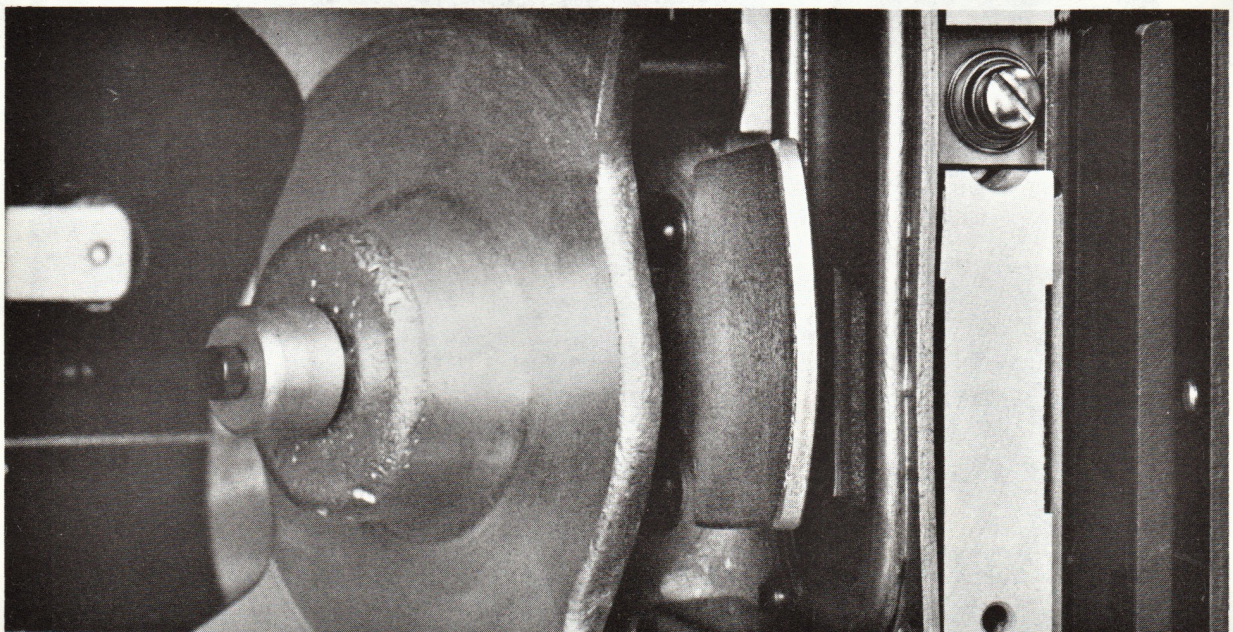
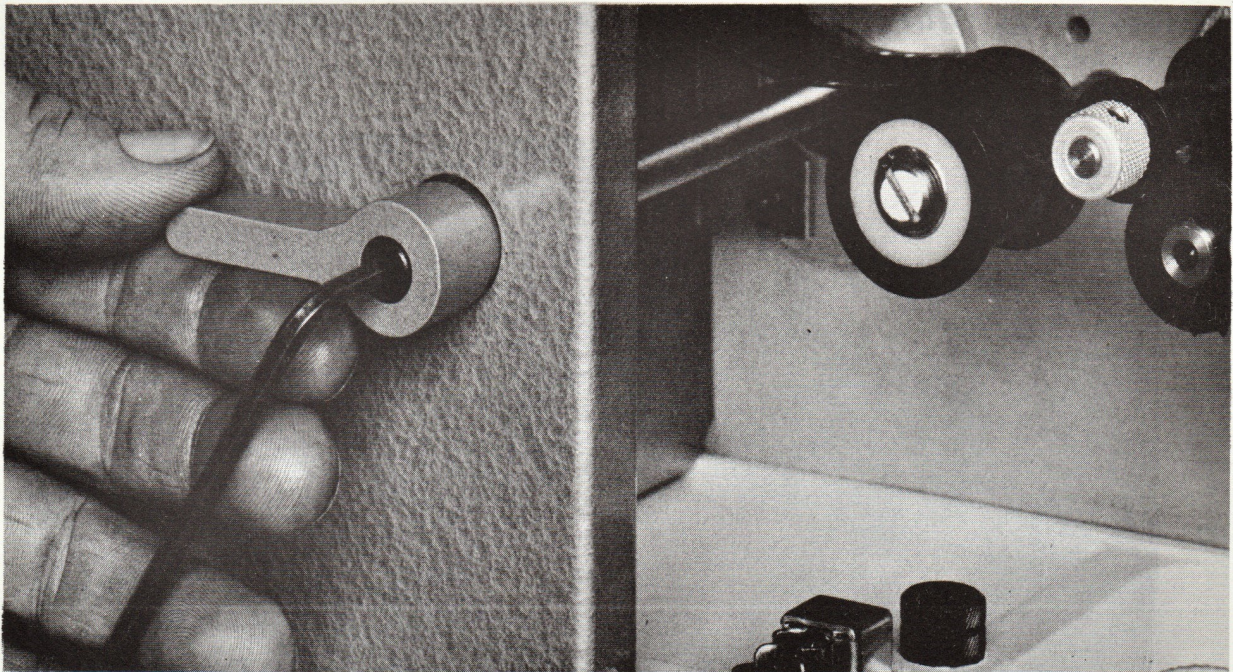


FIG. 10

SHUTTER

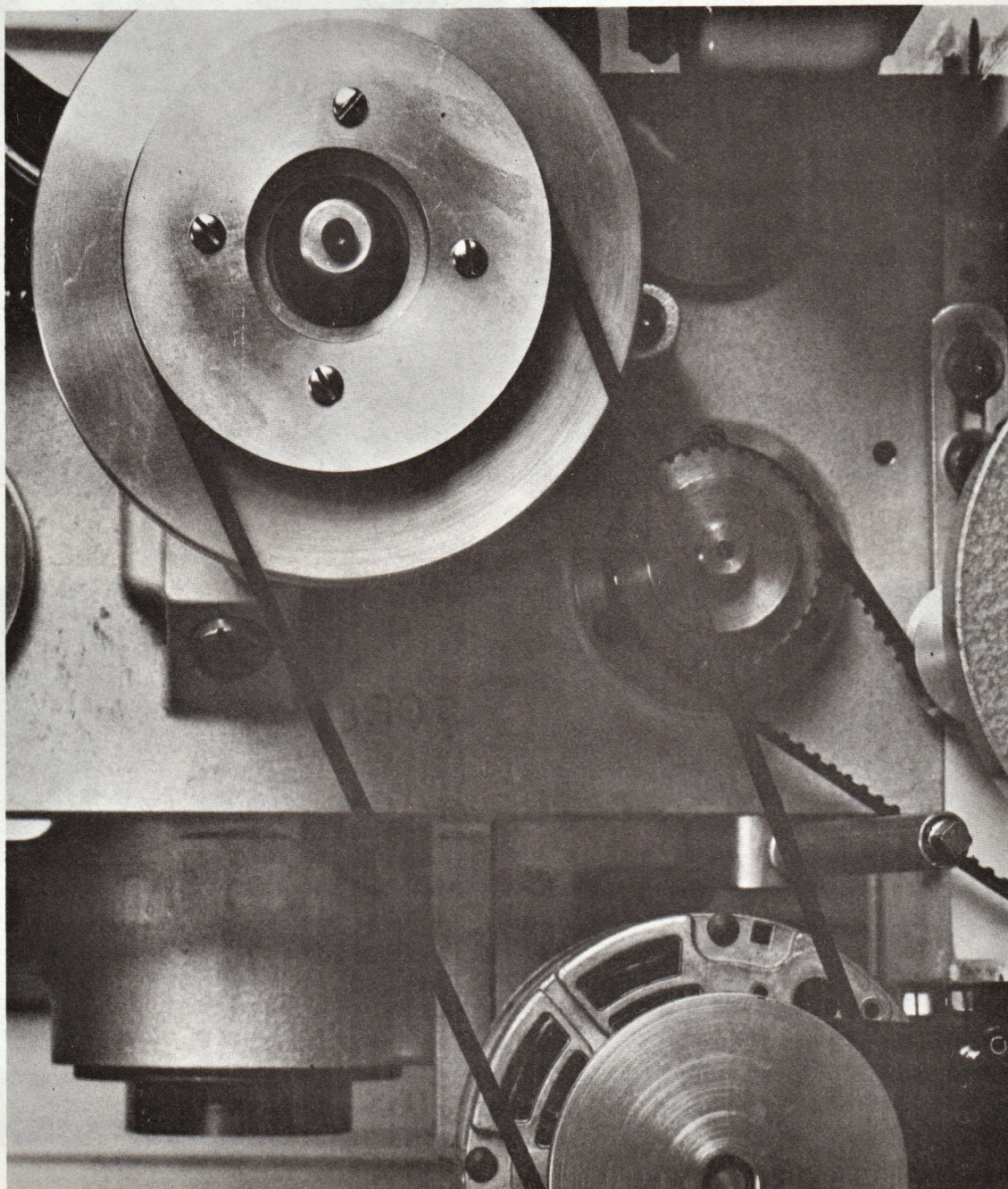
The shutter blade and framing lamp are accessible through the left door on the film side of the projector. In order to afford maximum protection of anyone accidentally touching a shutter blade, case is designed so that the framing handle must be removed with an Allen Wrench before access can be gained to the shutter compartment.

In order to keep shutter blade at a minimum noise level, shutter blade is mounted on an isolation coupling No. 2713. Ample room has been left in the shutter compartment for ease in servicing.



PROJECTOR DRIVE

Projector, when used with Ballantyne Model VII Soundhead, is driven by a 1/15 horsepower motor located in the non-operating side of the projector. The motor drives the intermittent flywheel by means of a 1/4" V Belt No. 2997, Fig. 13, which should be kept in a snug position. Drive belts should never be tight. When using Ballantyne Model VII Soundhead, the soundhead is driven by means of a Timing Belt No. 7-197, Fig. 13, and gear from the lower sprocket shaft of the projector to the drive mechanism on the soundhead. There is an idler roller in the soundhead for putting tension on the drive belt. For instructions on drives with soundheads other than Ballantyne, see instruction sheet for various types of soundheads.



MAGAZINES

April 21, 1970, Underwriters' Laboratories eliminated their requirement for enclosed film magazines. Ballantyne has replaced the fire rollers, normally supplied with the magazines, with bearing mounted guide rollers No. 2761, Fig. 14 and No. 2761, Fig. 15. These rollers operate in a fixed position on the shaft, but the shafts are adjustable for alignment with reels and sprockets. Loosen the Set Screw in the frame immediately behind the film guide roller No. 2761, Fig. 15, and the rollers can be moved in or out.

If Ballantyne film feed bracket and take-up brackets are installed on equipment other than Ballantyne, make certain that case frame is cut away to give adequate clearance to the film guide rollers.

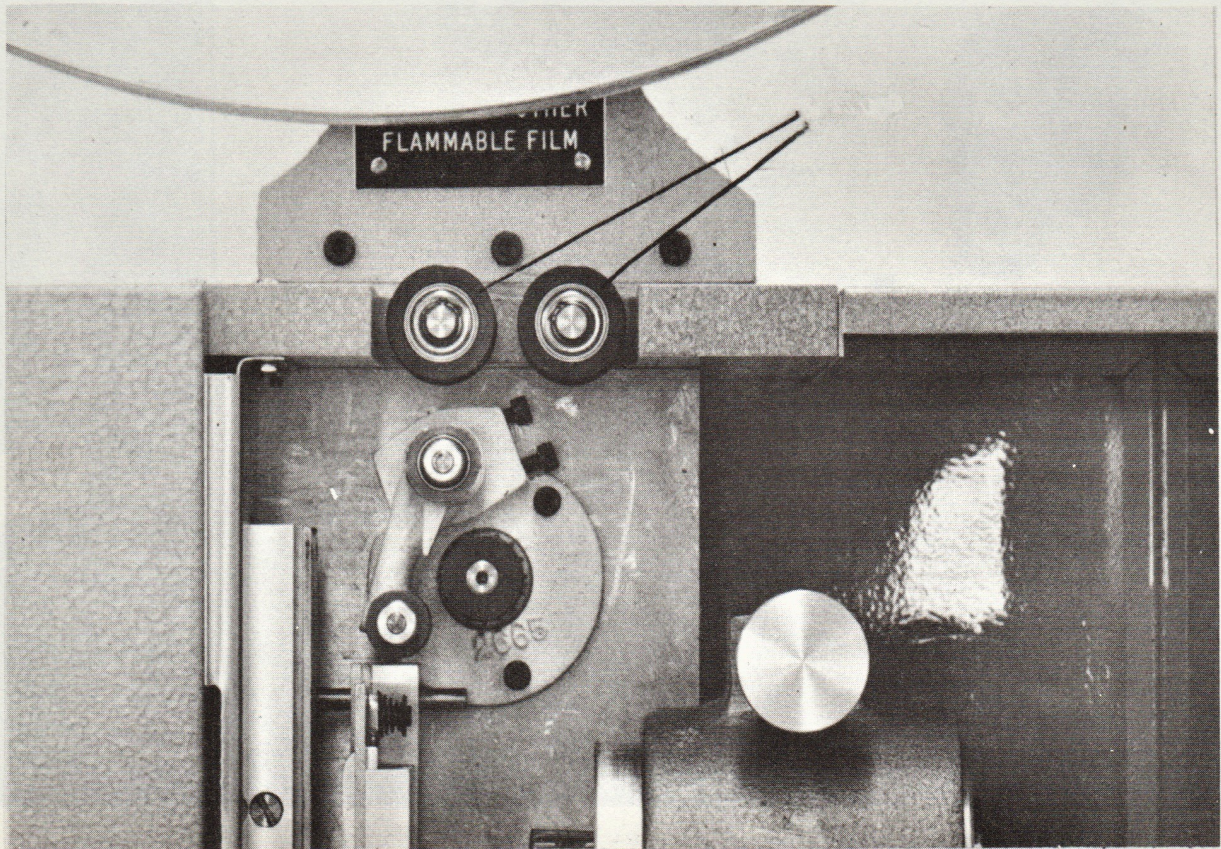


FIG. 14

NOTE: Since many of these projectors will be installed for standard operation and many will be installed for automation, no motor starting switch is supplied. Because of the small size of the projector drive motor, 15 amps is adequate protection on the circuit breaker.

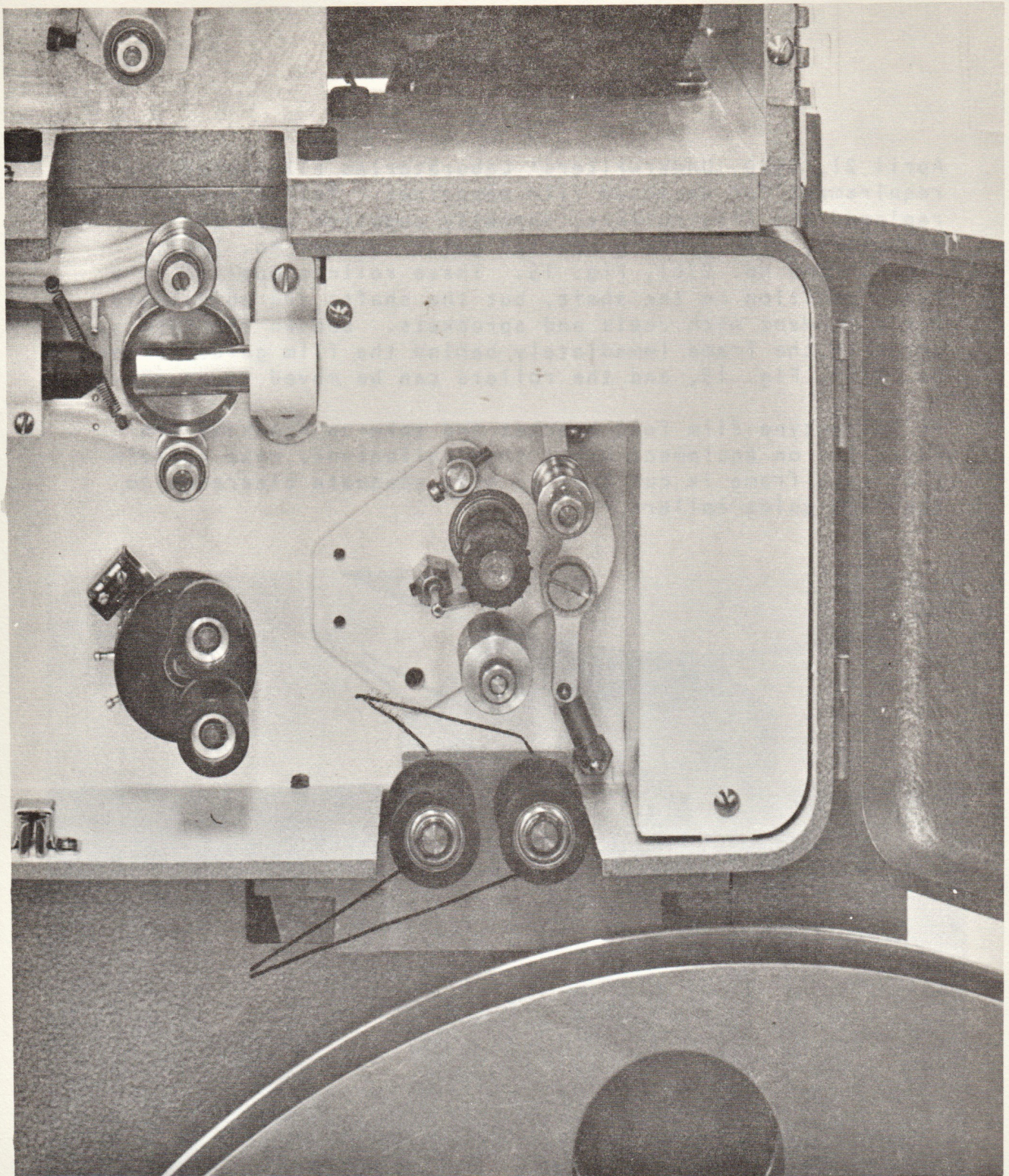


FIG. 15

LOWER SPINDLE GUIDE



UNDERWRITERS' LABORATORIES, INC.

CHICAGO · NORTHBROOK, ILL. · MELVILLE, N.Y. · SANTA CLARA, CALIF.

an independent, not-for-profit organization testing for public safety

Subject 122

Chicago, Illinois
April 21, 1970

TO: Electrical Council Of Underwriters' Laboratories, Inc.
and
Manufacturers Of Listed Motion Picture Projectors

SUBJECT: Commercial Motion Picture Projectors-Elimination Of
Enclosed Film Magazines.

There have been no adverse comments to our bulletin dated January 30, 1970 under Subject 122. Therefore, effective as of the date of this bulletin the Laboratories will no longer require that a commercial motion picture projector be provided with an enclosed film magazine.

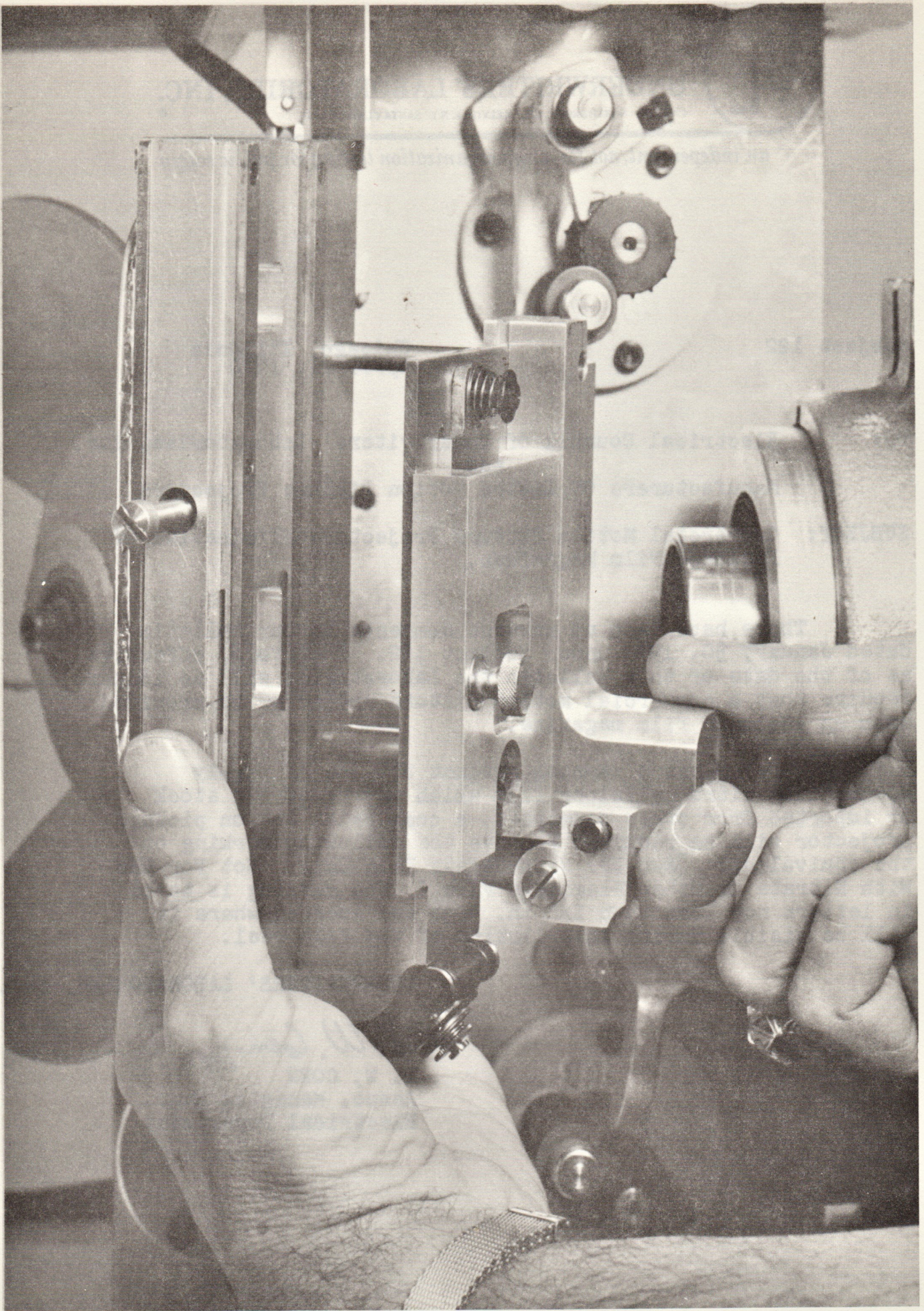
However, as a warning against the use of highly combustible nitro-cellulose film which may be of old stock or imported from other countries, a commercial motion picture projector will be required to have the following marking or the equivalent: "For Use With Safety Film Only. Not For Use With Nitrate Or Other Flammable Film." The marking is to be in letters not less than 1/8 in. high and located where it will be visible during installation of the film reel.

UNDERWRITERS' LABORATORIES, INC.

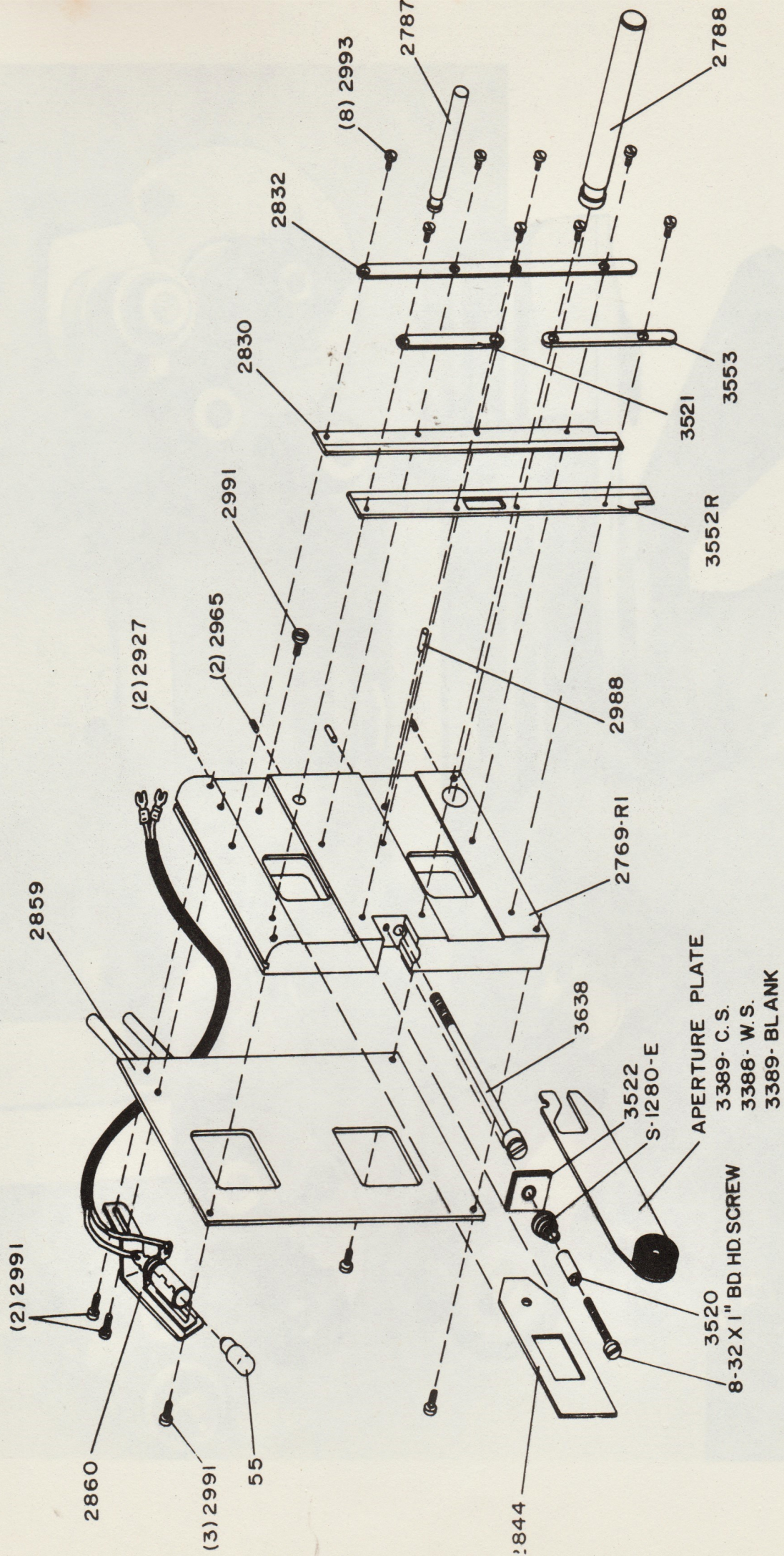
S. W. Coen /RT

S. W. COEN
Assoc. Managing Engr.
Electrical Department

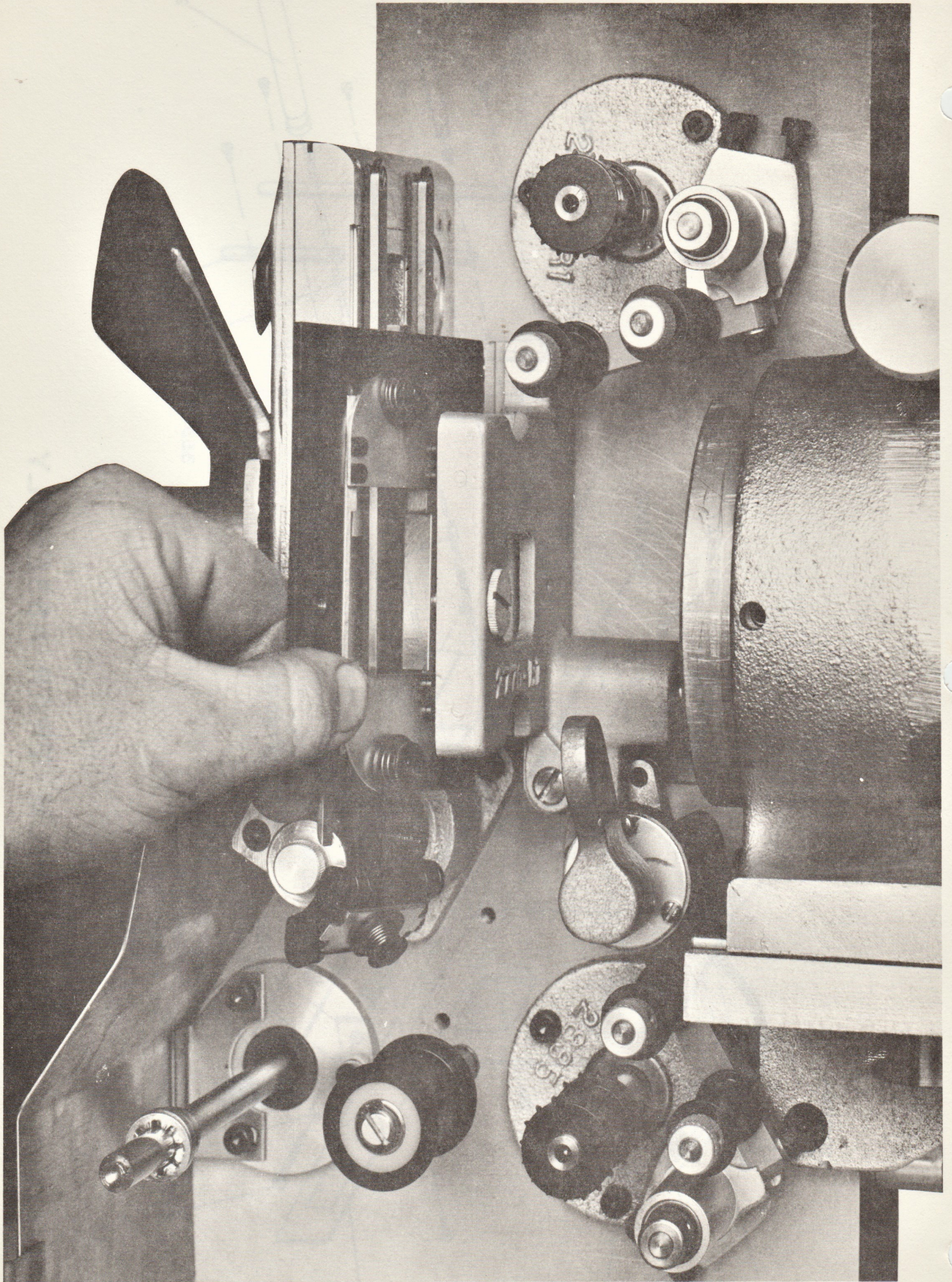
FILM TRAP AND GATE



FILM TRAP AND GATE

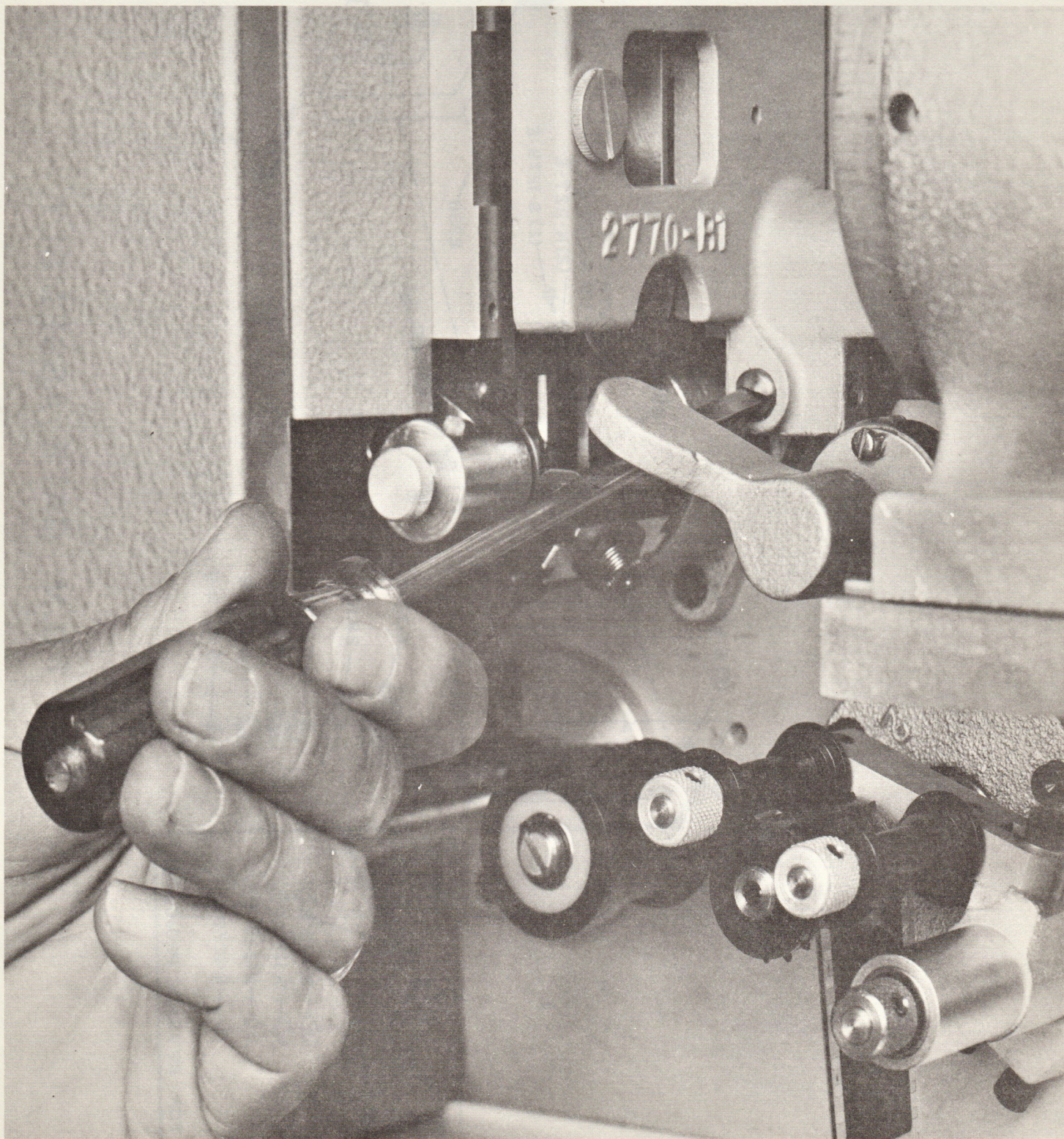


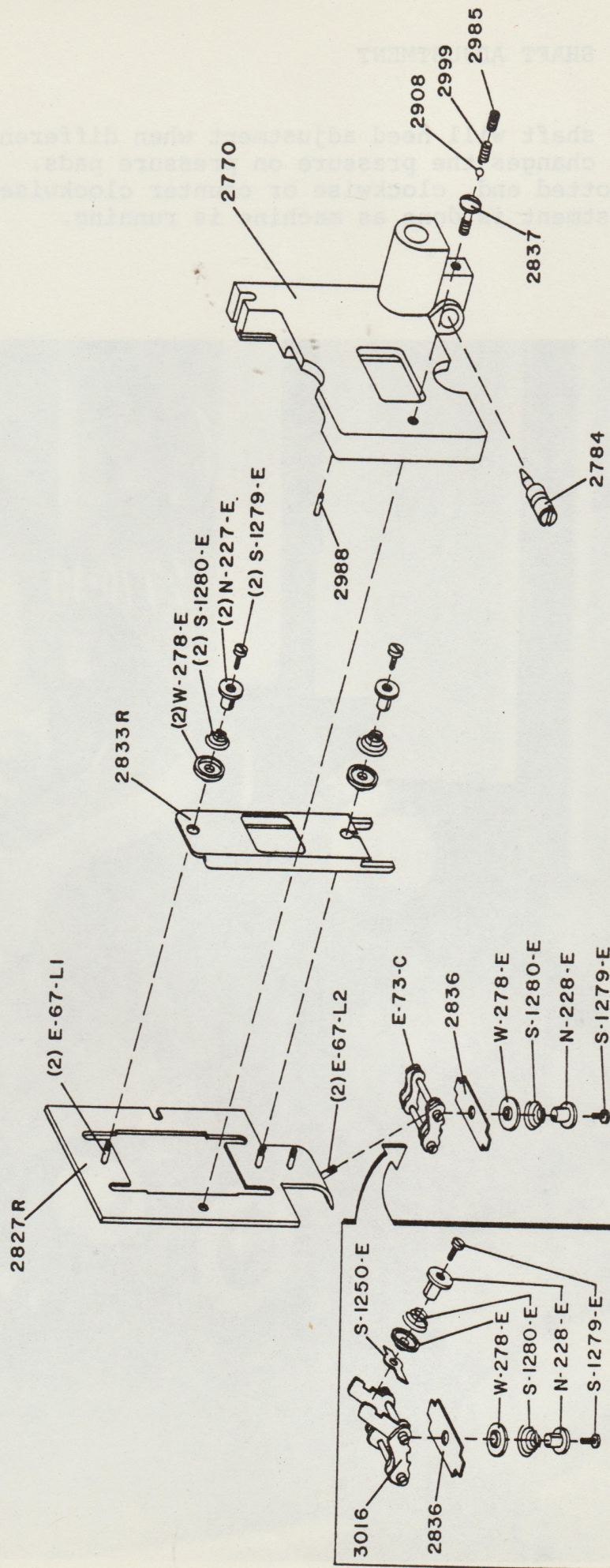
FILM TRAP ASSEMBLY



ECCENTRIC SHAFT ADJUSTMENT

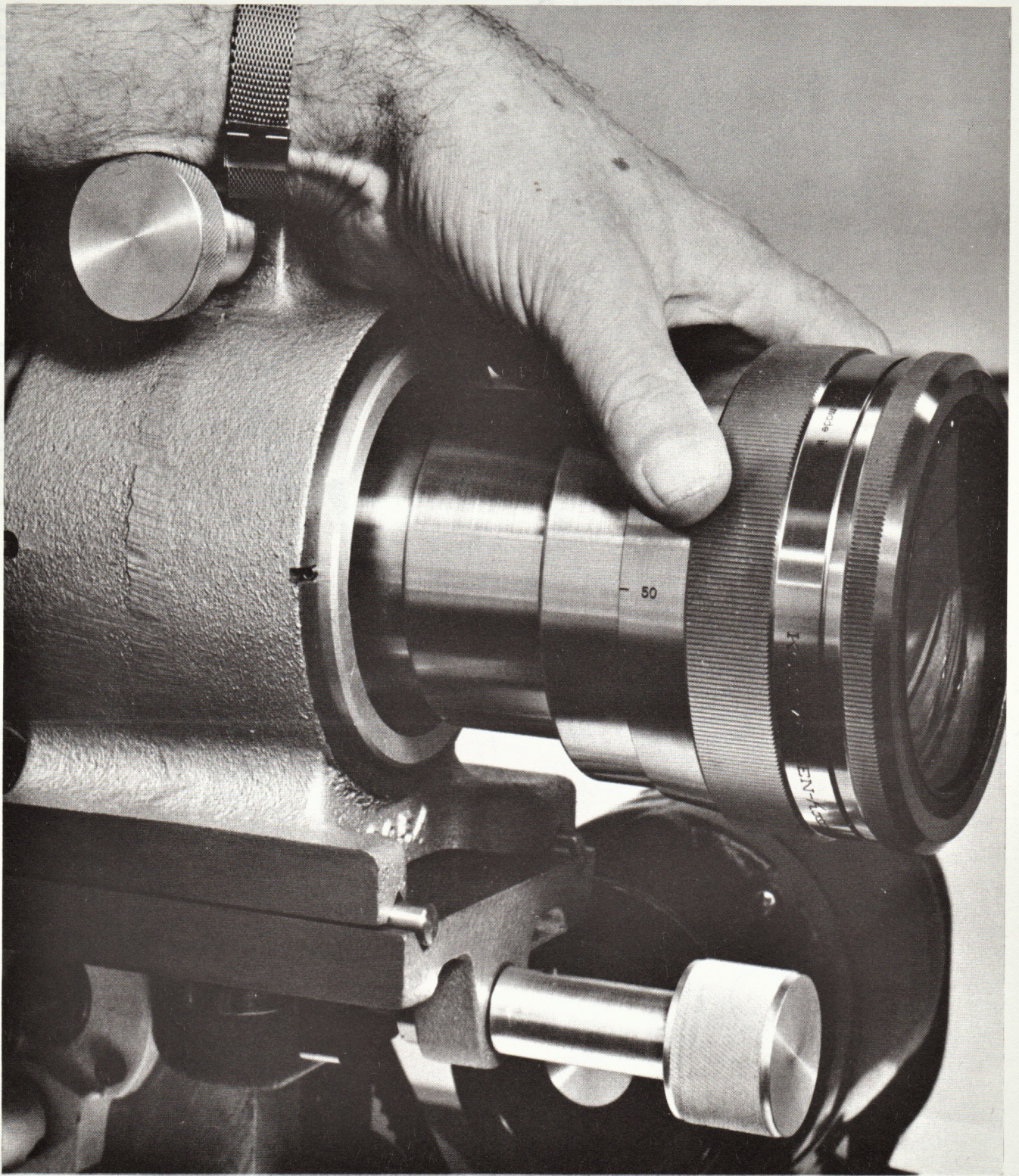
Eccentric shaft will need adjustment when differences in film thickness changes the pressure on pressure pads. Turn eccentric shaft, slotted end, clockwise or counter clockwise for adjusting. This adjustment is done as machine is running.

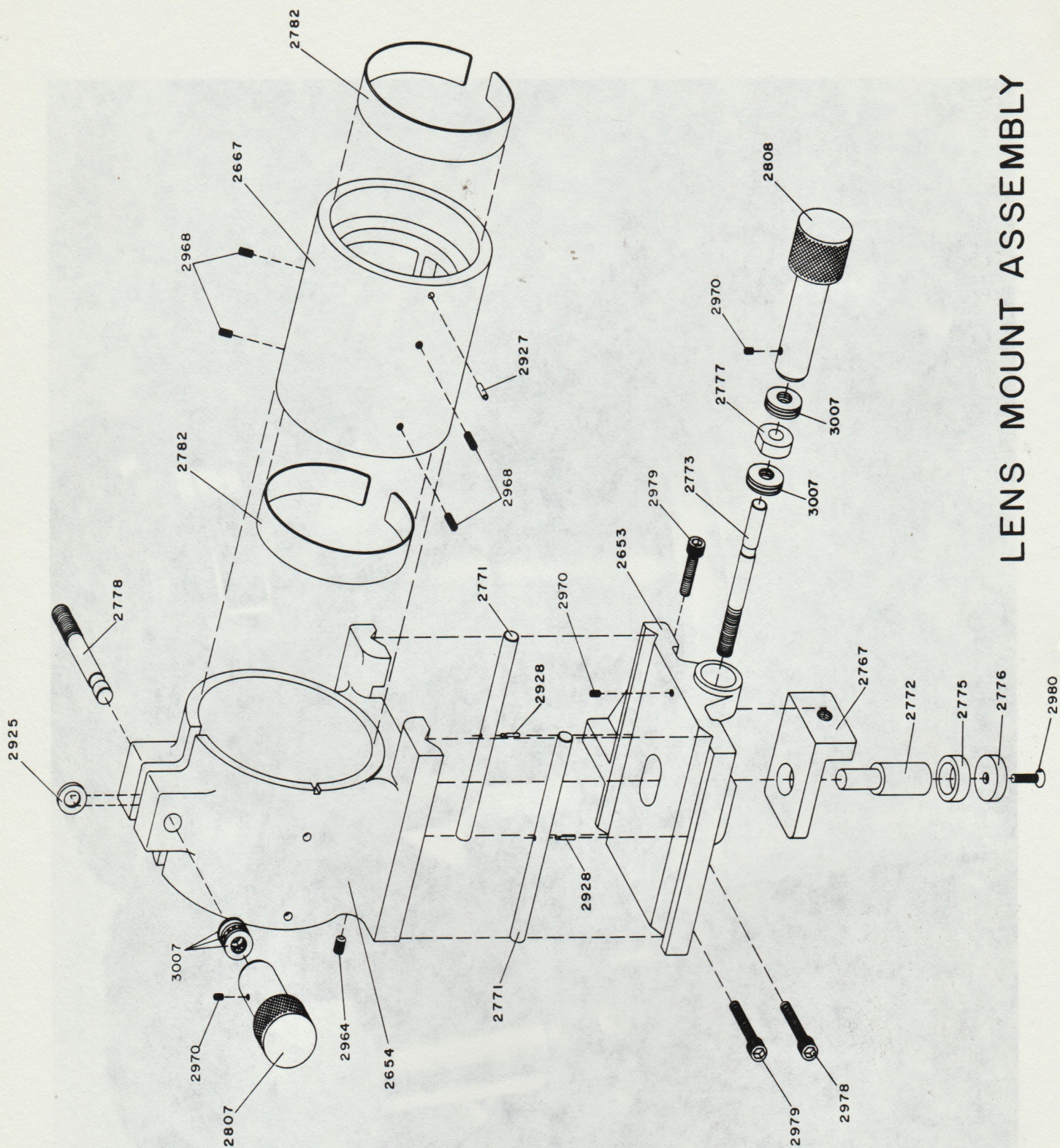




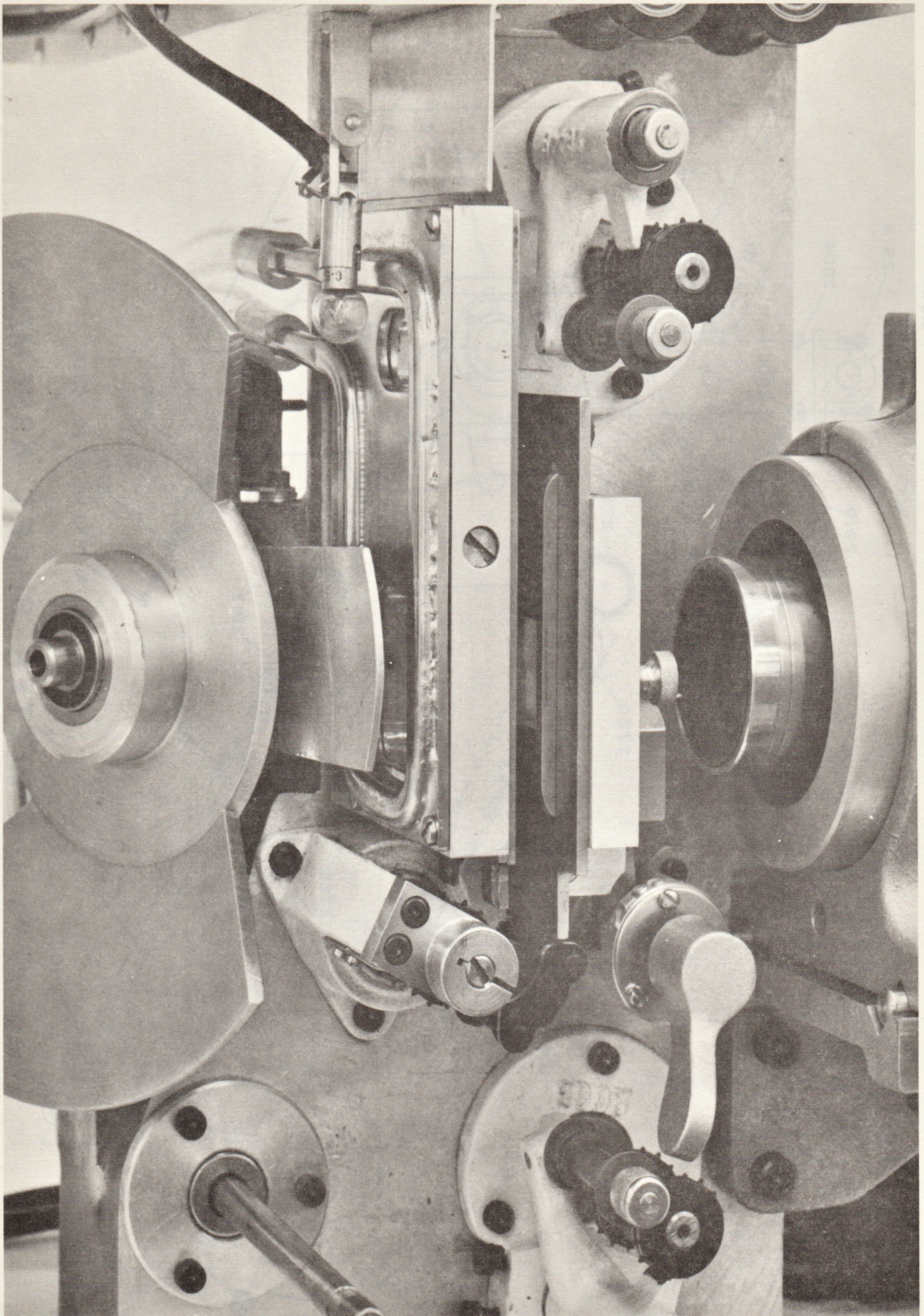
FOR REVERSE PROJECTION

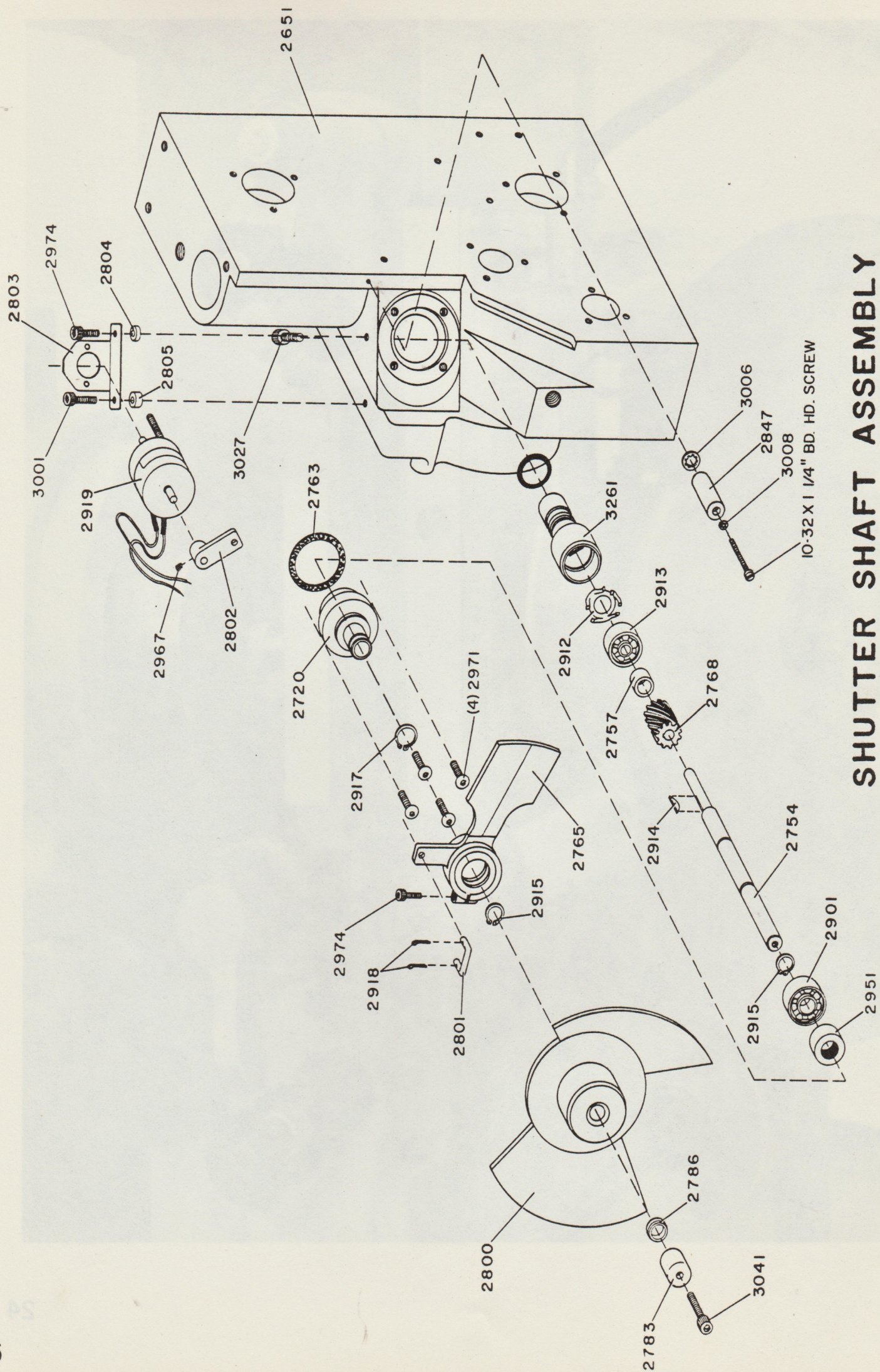
FILM GATE ASSEMBLY





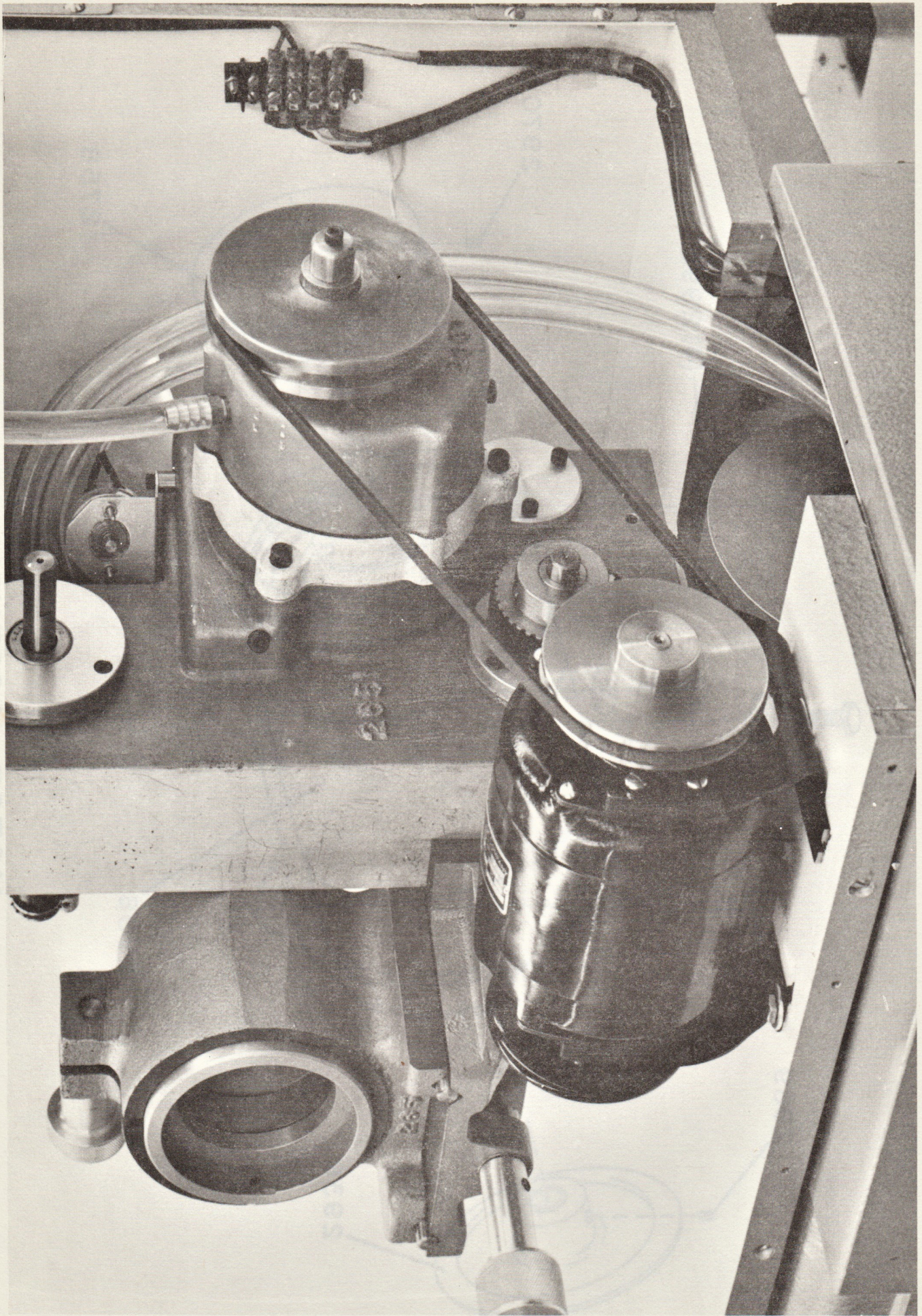
LENS MOUNT ASSEMBLY

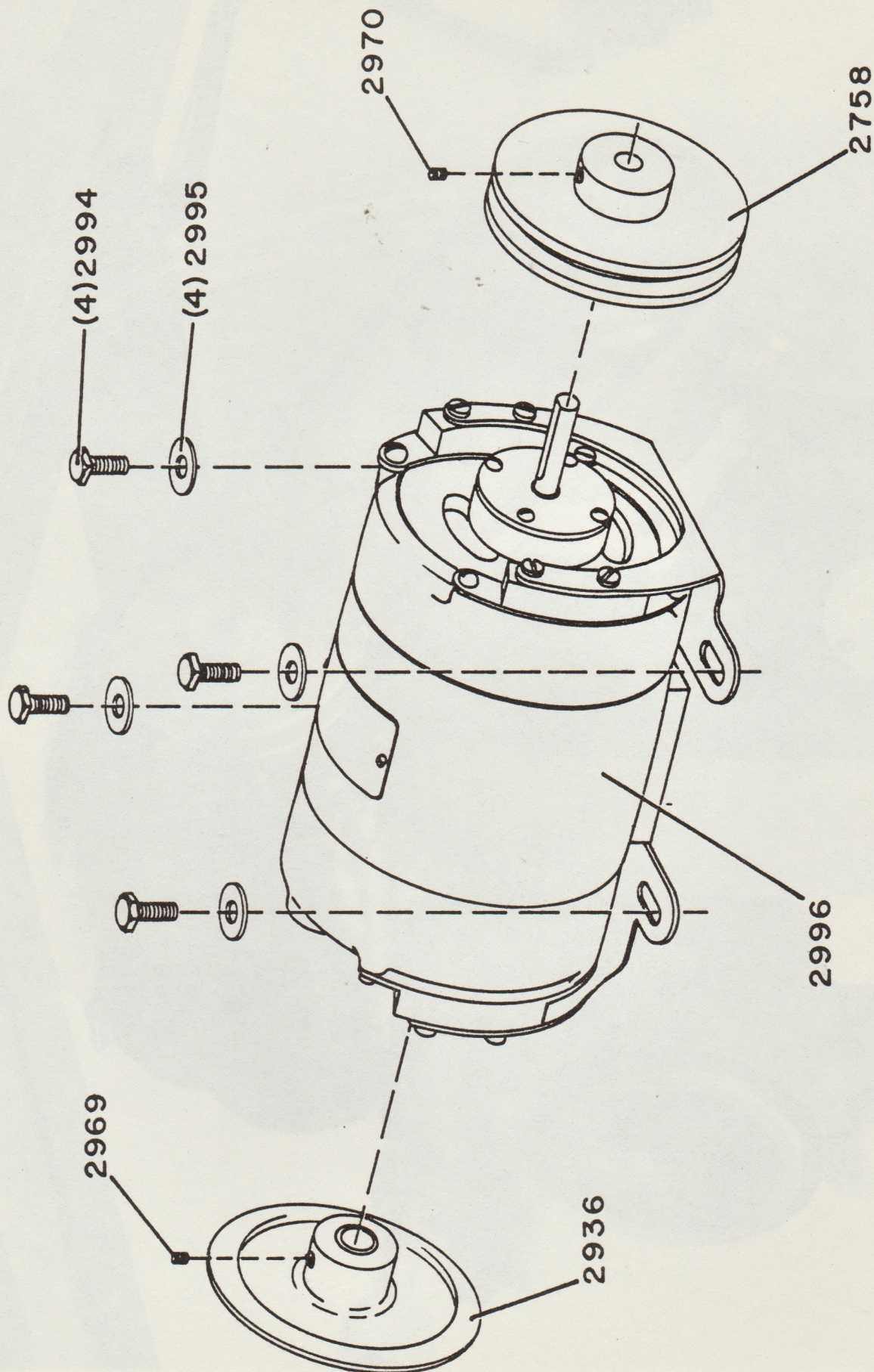




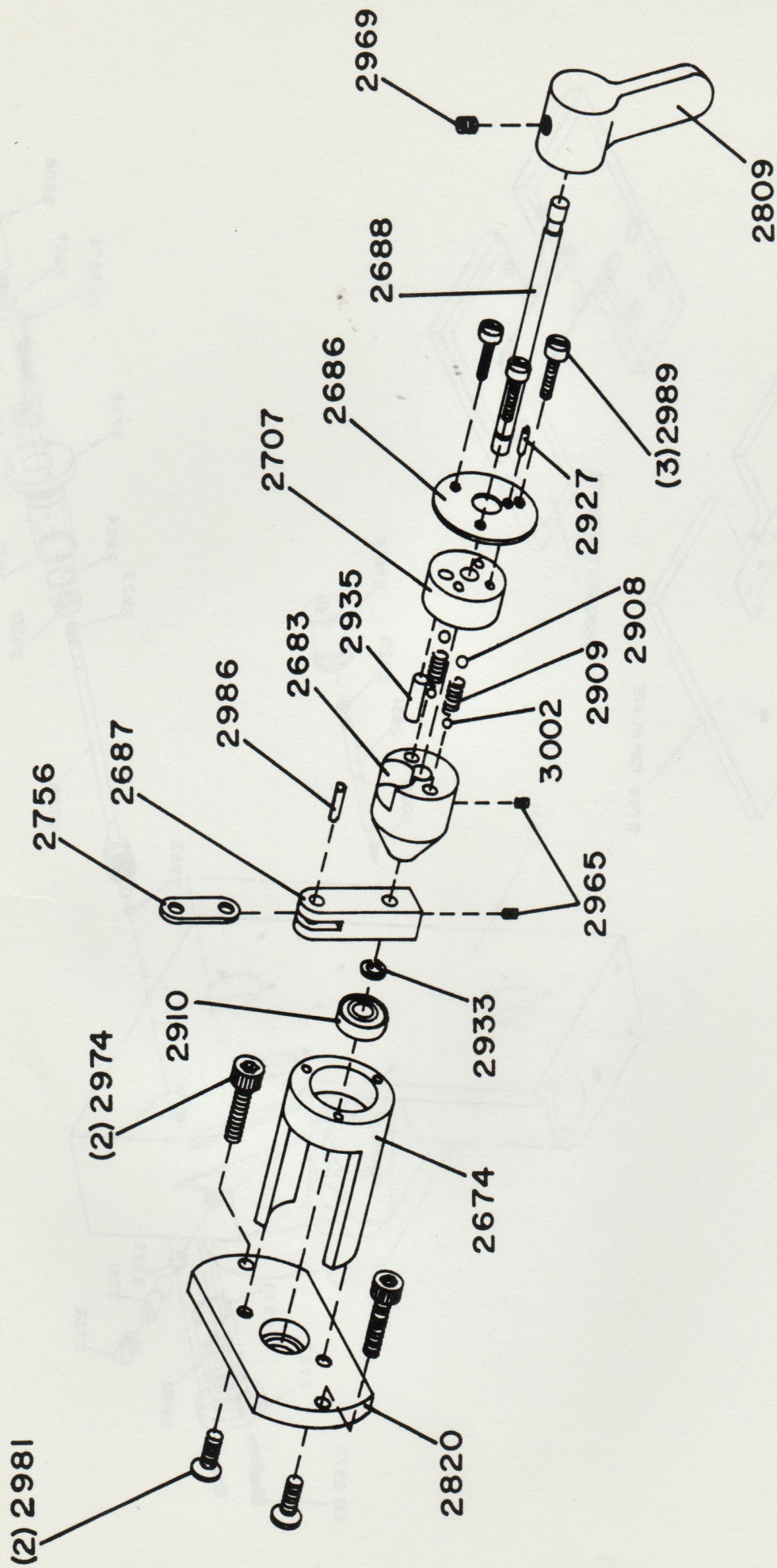
SHUTTER SHAFT ASSEMBLY

10-32 X 1 1/4" BD. HD. SCREW



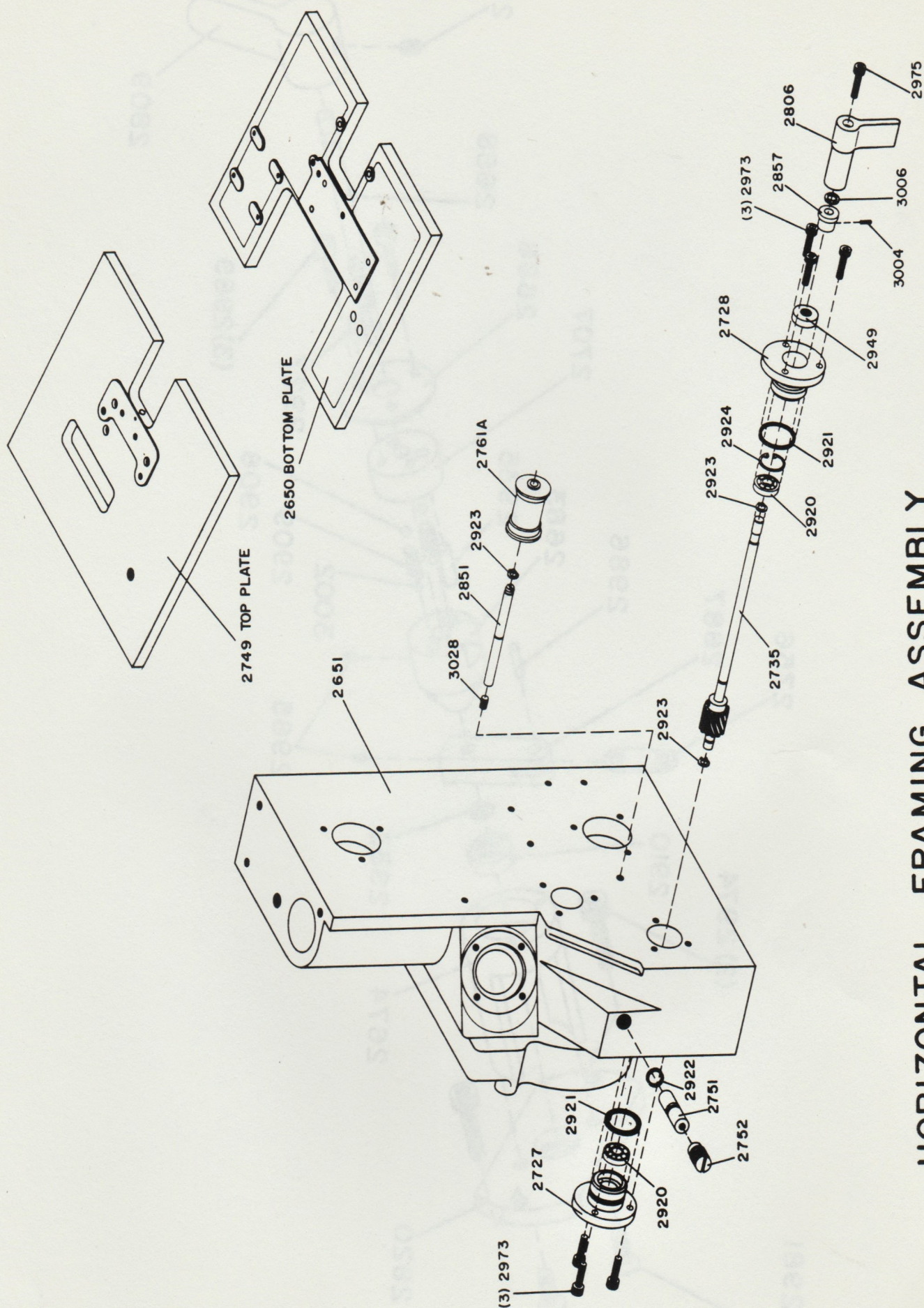


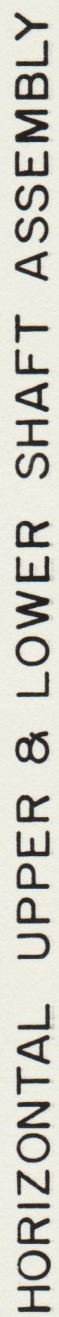
MOTOR ASSEMBLY

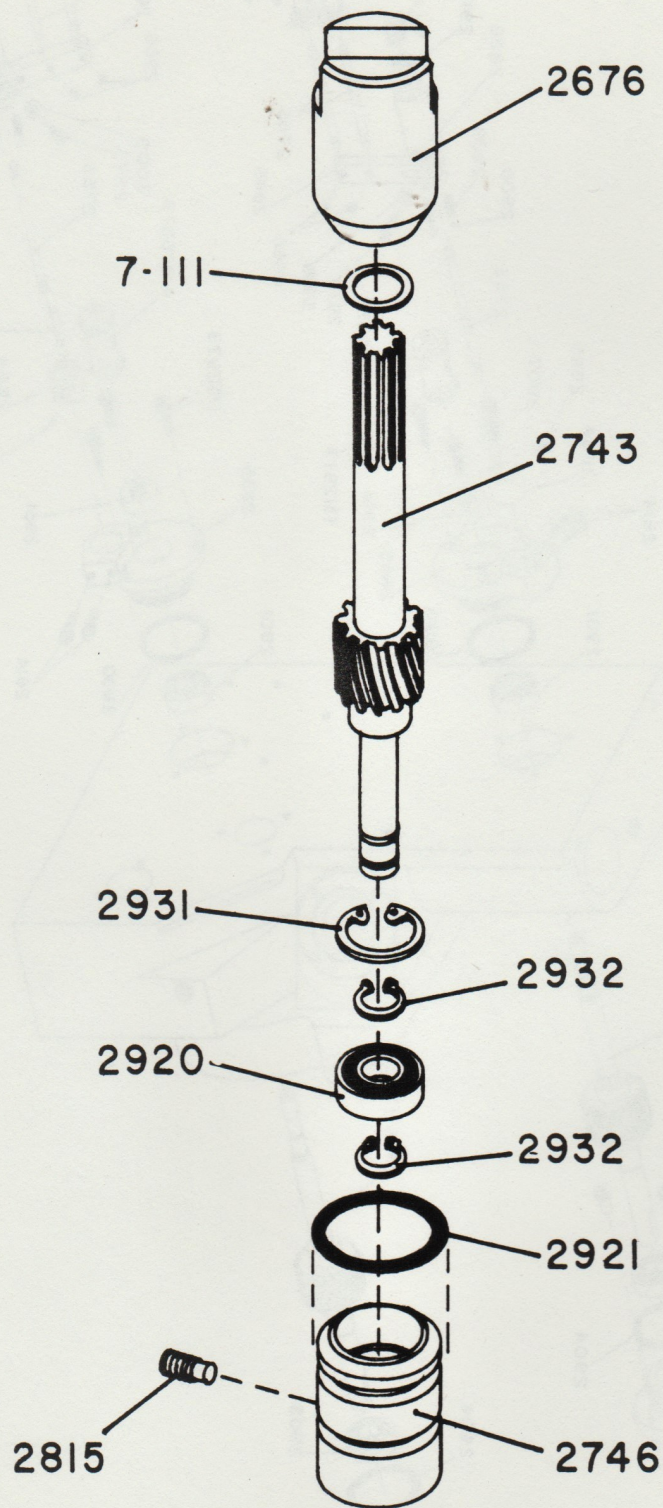


DETENT MOUNTING ASSEMBLY

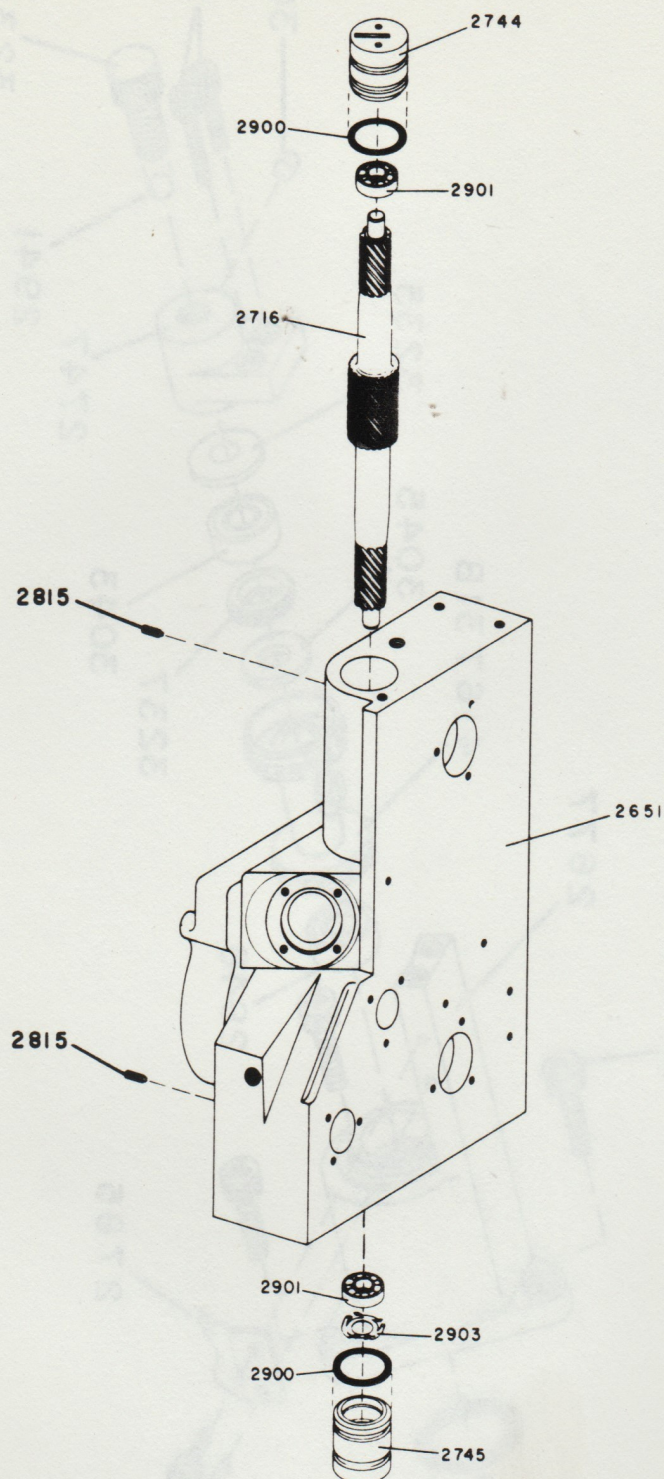
HORIZONTAL FRAMING ASSEMBLY



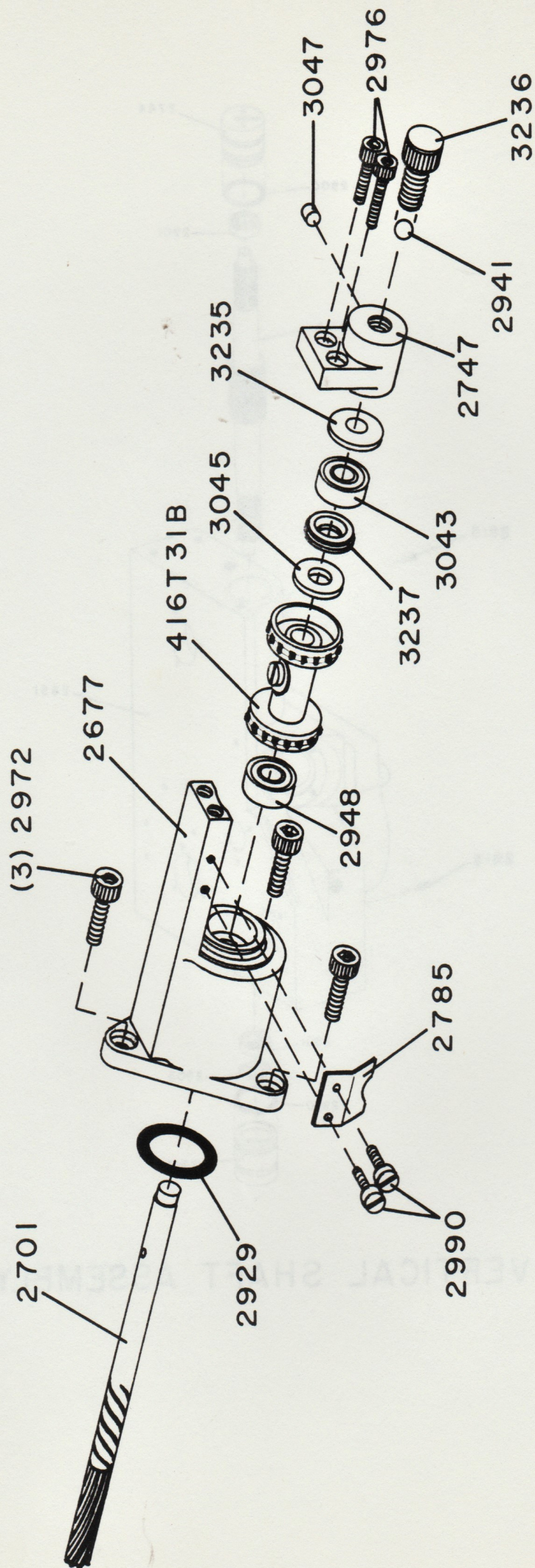




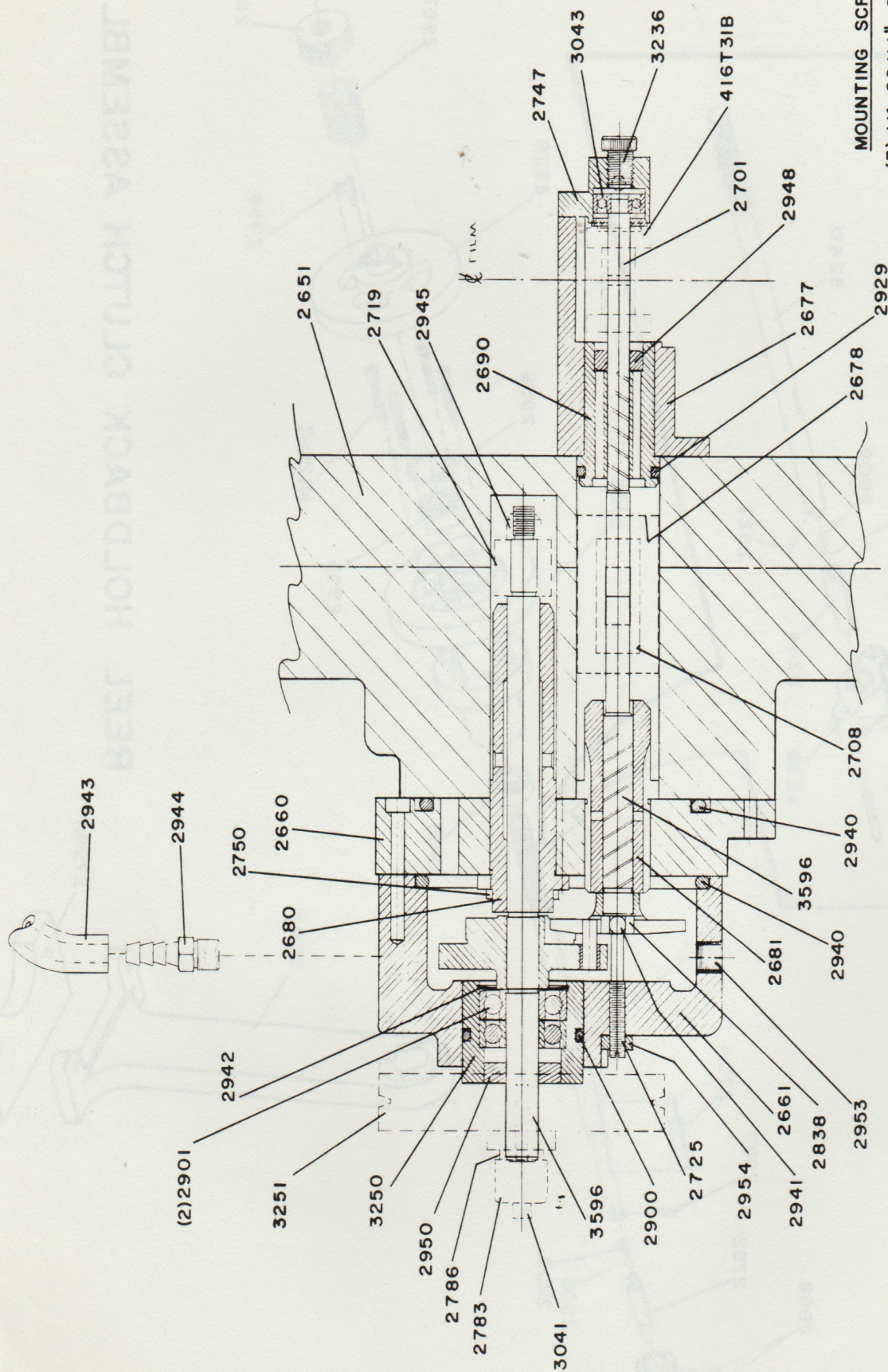
VERTICAL FRAMING ASSEMBLY



VERTICAL SHAFT ASSEMBLY



INTERMITTENT SPROCKET ASSEMBLY



MOUNTING SCREWS NOT SHOWN

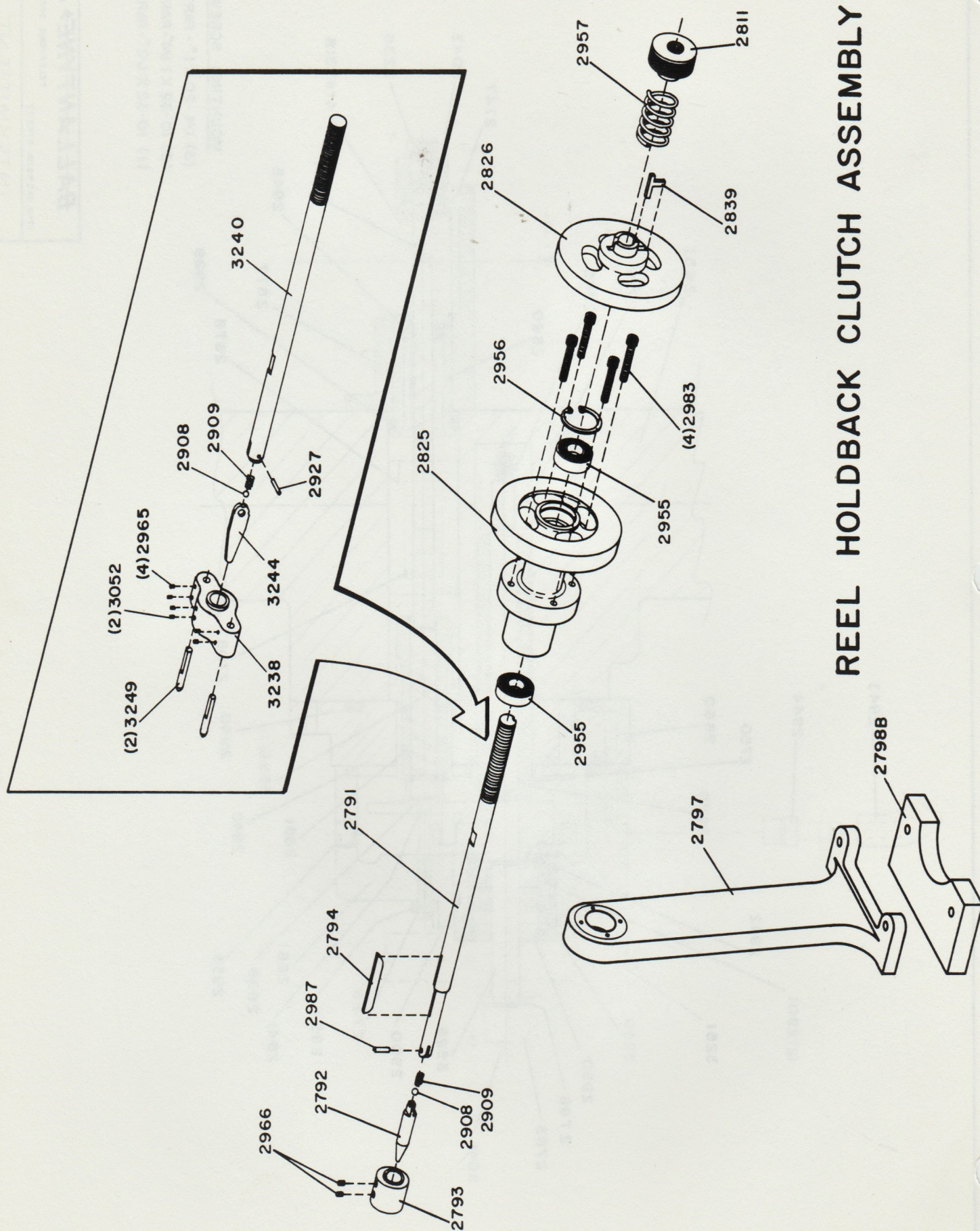
- (3) 1/4-20 X 1" - PARTS 2660 TO 2651
- (3) 10-32 X 1 1/4" - PARTS 2661 TO 2660
- (1) 10-32 X 1/2" - PARTS 2750 TO 2660

BALLANTYNE OF OMAHA, INC.

1712 JACKSON STREET
TELEPHONE 342-4444
OMAHA, NEBRASKA

INTERMITTENT ASSEMBLY

SCALE 1:1
DATE 6/23/70
DRAWING NO. 2705
REVISED 3/12/71



REEL HOLDBACK CLUTCH ASSEMBLY

#2812 DRIVE GEAR (PRO-35)

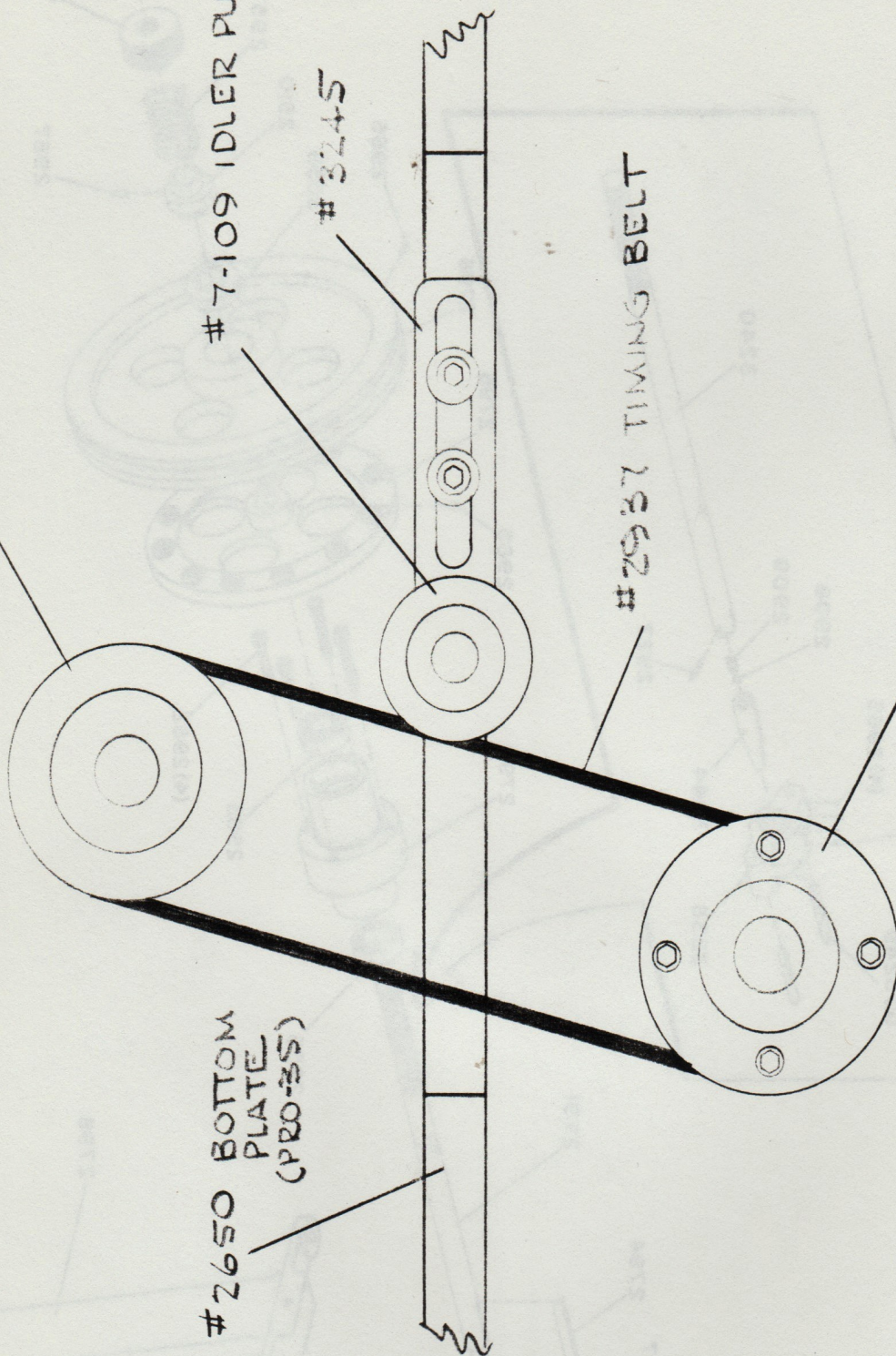
#7-109 IDLER PULLEY

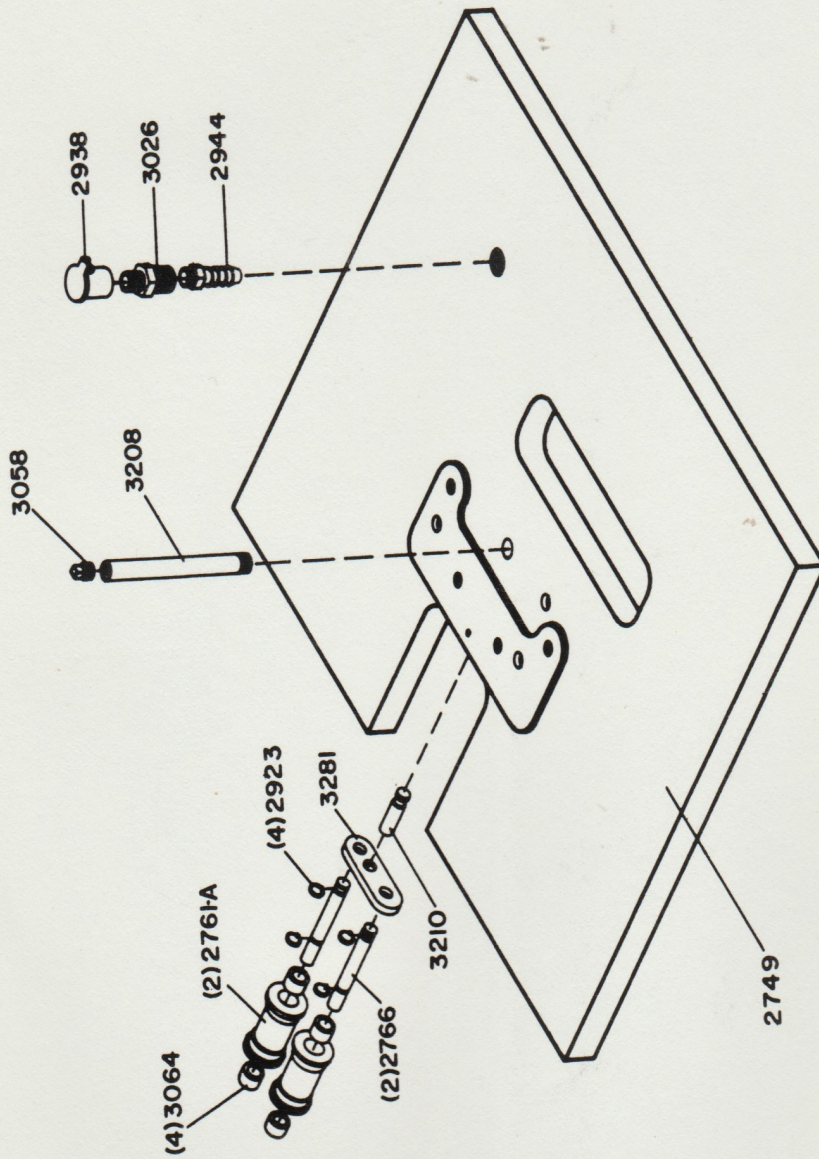
#3245

#2937 TIMING BELT

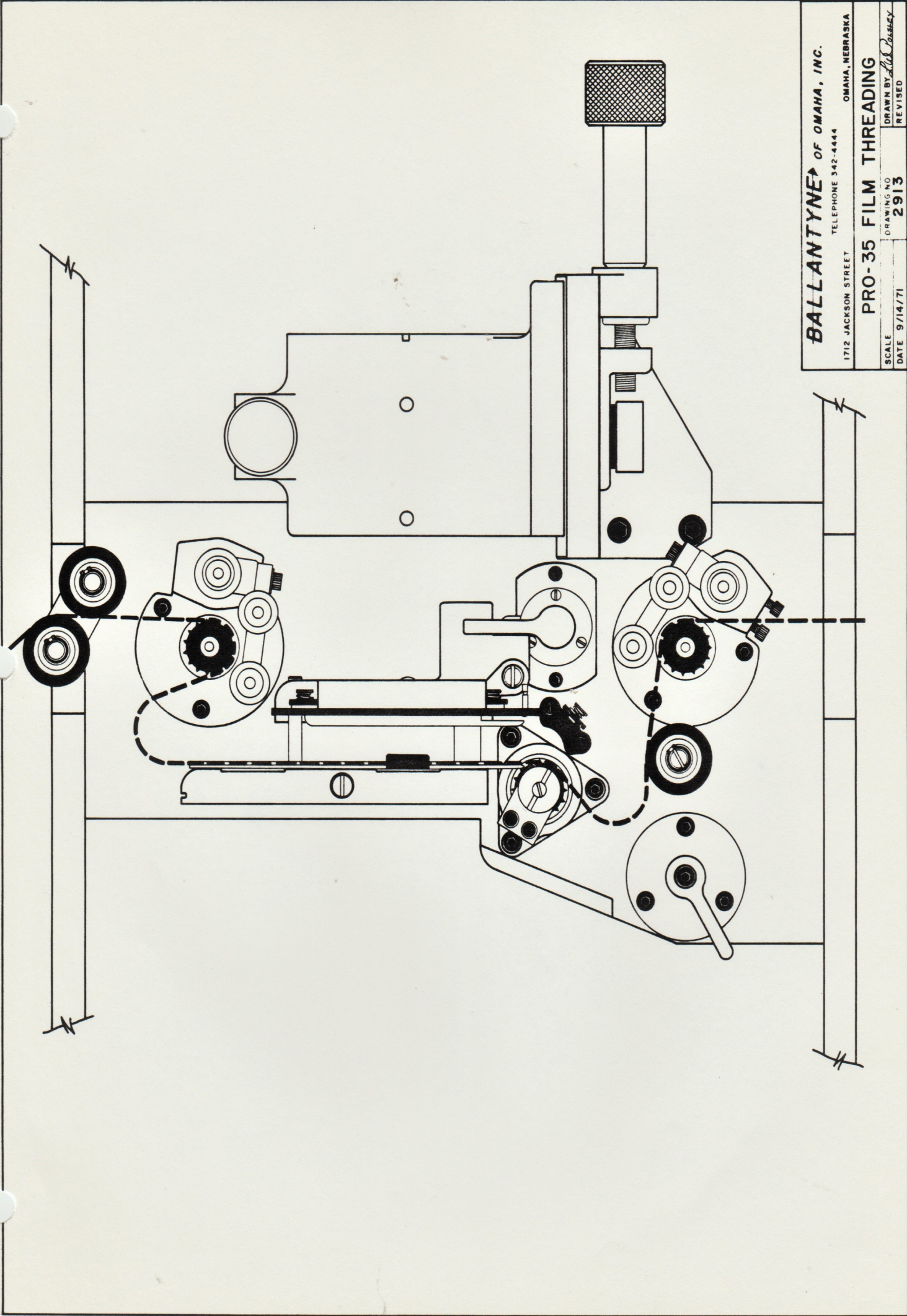
#2829 DRIVE GEAR (MODEL VII)

#2650 BOTTOM
PLATE
(PRO-35)



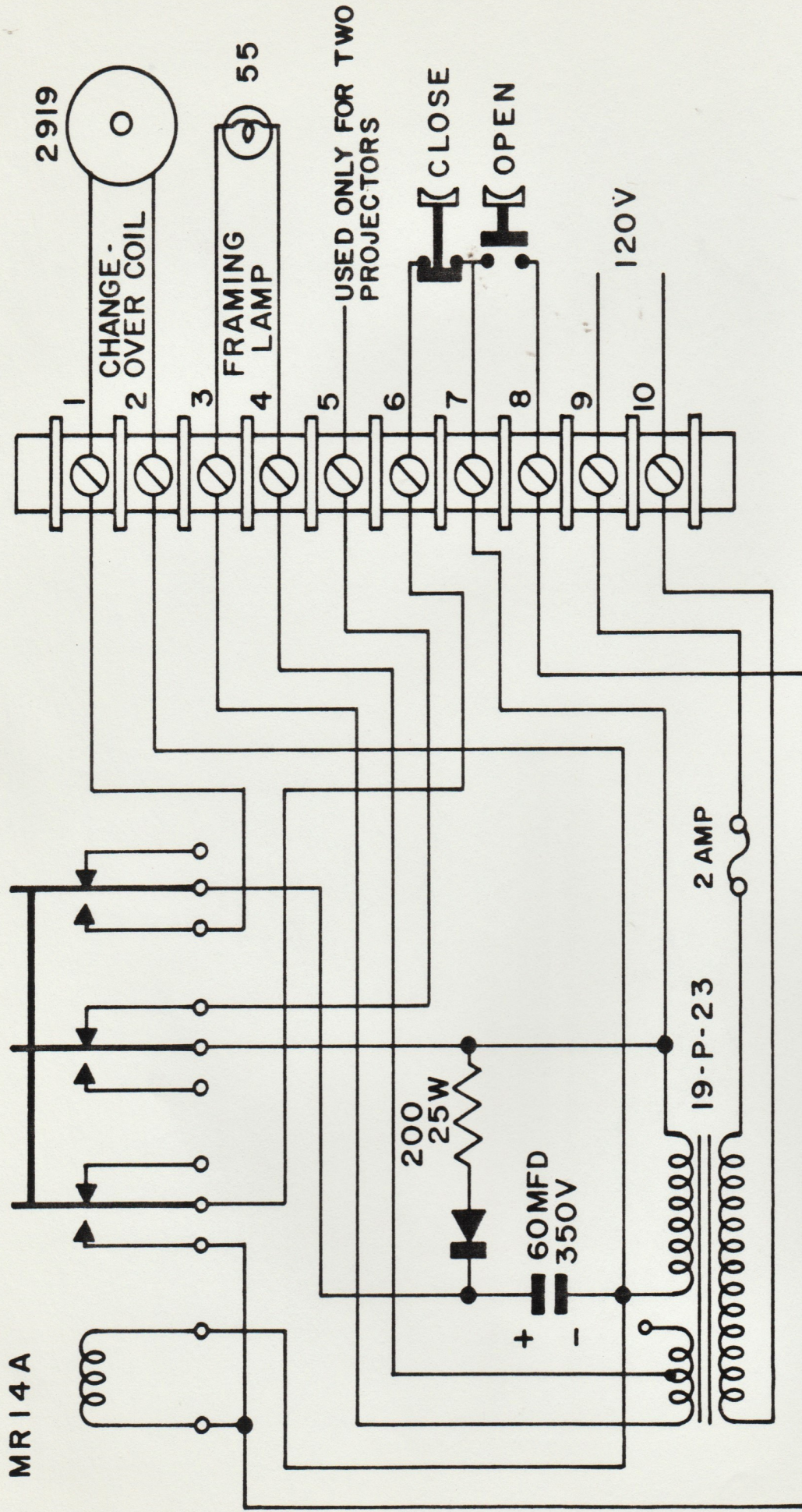


MAIN FRAME TOP PLATE



BALLANTYNE OF OMAHA, INC.	
1712 JACKSON STREET TELEPHONE 342-4444 OMAHA, NEBRASKA	
PRO-35 FILM THREADING	
SCALE	DRAWN BY <i>W. J. Gabley</i>
DATE 9/14/71	REVISED
	2913

MR14A



BALLANTYNE OF OMAHA, INC.

TELEPHONE 342-4444

1712 JACKSON STREET

OMAHA, NEBRASKA

3017A SINGLE CHANGE-OVER POWER SUPPLY

SCALE

DRAWING NO.

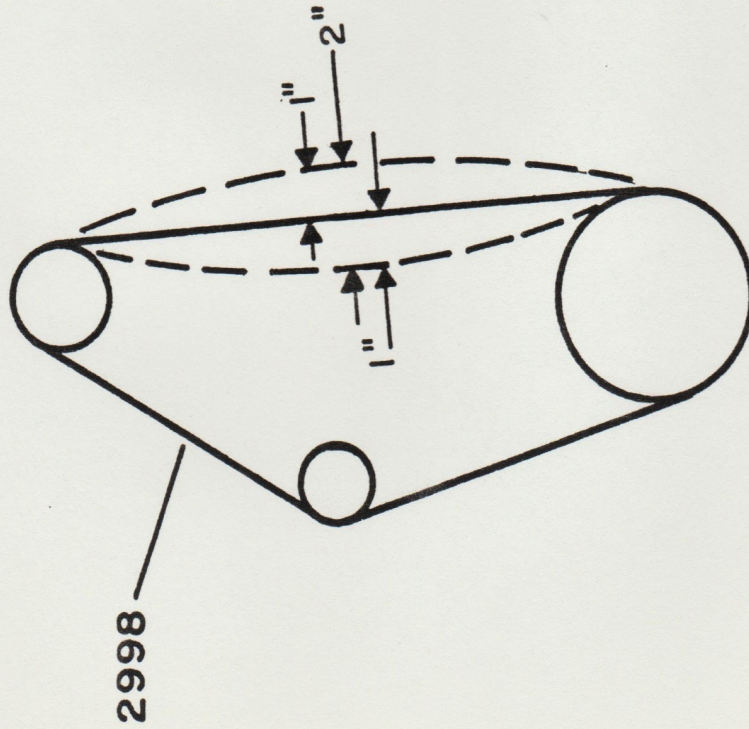
3302

DATE 11/14/72

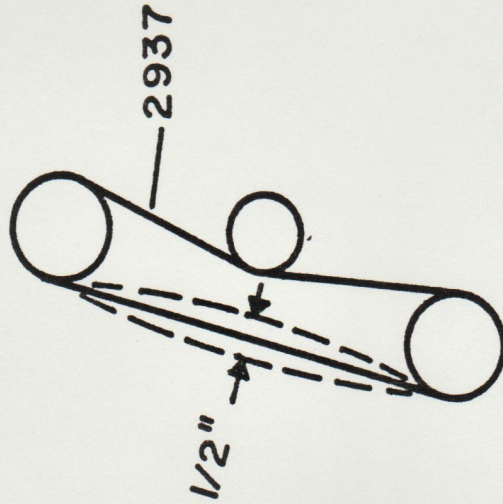
DRAWN BY L.W.POLSLEY

REVISED

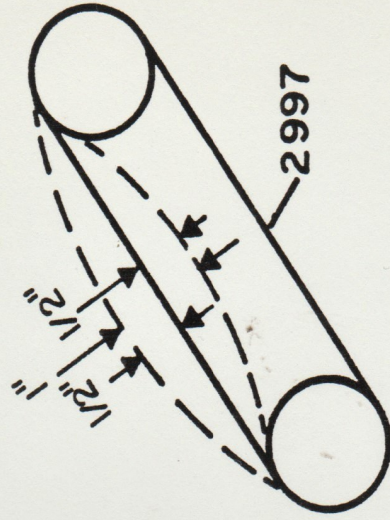
BELT ADJUSTMENTS - PRO-35-VIP-35



LOWER TAKE-UP



SOUNDHEAD DRIVE



PROJECTOR DRIVE

BALLANTYNE OF OMAHA, INC.

TELEPHONE 342-4444

1712 JACKSON STREET

OMAHA, NEBRASKA

SCALE

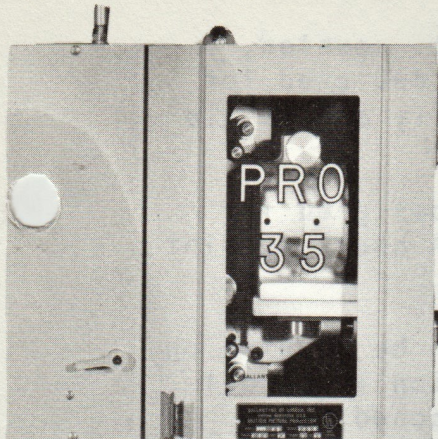
DRAWING NO.

DATE 1/18/74

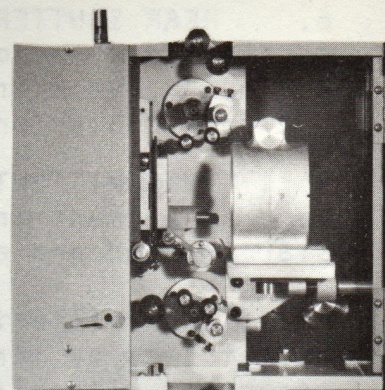
3391

DRAWN BY L.W.P.

REVISED 4/12/76



SPECIFICATIONS FOR
BALLANTYNE PRO-35 PROJECTOR



The Projector is designed so as to meet or exceed all Academy standards for film speed, picture jump, weave and film protection.

Basic design is so that the projector can be as simple as possible, yet readily adaptable to accept the most modern and sophisticated equipment, making it the most versatile and deluxe projector on the market.

1. **SPROCKETS.** Sprockets are standard 16 teeth. Both upper and lower sprockets are mounted to the drive shafts so that they are readily removable. All sprocket shafts are sealed ball bearing mounted.
2. **PAD ROLLERS.** Film is guided and held to upper sprockets by two pad rollers mounted on a detent arm. Pad roller arms are so designed that adjustment can be made horizontally and vertically.
3. **FILM TRAP.** The film trap is designed so it is easily removed from center frame. Film trap is slightly curved concave. Film trap shoe is hardened and ground steel mounted by means of screws and incorporates a spring-loaded pressure pad with eight usable sides. Trap is milled to accept snap-in type apertures for rigid positioning, yet are easily removed. Aperture has a finger or hand knob, non-metallic for heat insulation.
4. **FILM GATE ASSEMBLY.** Film gate assembly is a one-piece removable metal plate mounted on a single pivot.
5. **LENS MOUNT.** Lens mount is designed for instant change lens holder, to accept 4" diameter lens.

Lens mount is anchored to the center frame by means of three screws and is designed for easy removal and replacement with a turret or horizontal lens mount. Lens mount is of rigid construction so as to accept the longest combination of lens and anamorphic attachment without deflection.

5(a). **OPTIONAL ACCESSORY--LA-100 AUTOMATIC LENS & APERTURE CHANGER.** As heavy and rigid as the existing mount, movement of lens is smooth and positive, with perfect alignment.

Aperture change is delayed until the center of lens travel and a light shield gives pleasing "fade-out" and "fade-in" effect. System also controls masking to move with lens. Lens and aperture driven by separate motors, stall type, instantly reversible. Stall keeps "pressure" on in any position, insuring positive alignment.

6. **REAR SHUTTER.** Cast aluminum rear shutter, angle mounted, double blade, revolves at 1440 RPM. Rear shutter is designed for maximum freedom from backlash. Shutter blade is easily accessible and adjustable for correct timing.

7. **INTERMITTENT.** Intermittent is heavy-duty and designed for easy adjustment in the field between star and cam. A heavy 4 point star is used and a 16 tooth sprocket.

Intermittent housing is designed so that it can be mounted on a flat face by three screws. Housing permits operation in an oil reservoir with oil drain and a visible oil gauge attached. All mechanical parts of intermittent are submerged in oil.

Intermittent housing has an outboard bearing, easily removable.

Intermittent sprocket is a standard hardened and ground steel sprocket as lightweight as good engineering standards will accept, mounted by a screw and nut.

Intermittent sprocket shaft is spiral cut on mechanism end to mate with framing device.

8. **FRAMING DEVICE.** The framing device consists of a nylon coupling with internal spirals and an external rack and gear for lateral movement. Gear is attached to a shaft running to the front of the projector with a hand knob mounted externally for adjustment. Shaft and knob are designed so as to accept automatic framing device.

REMOTE FRAMING AVAILABLE.

9. **LENS FOCUSING DEVICE.** Lens focusing device is a part of the lens mount so that it can be removed if necessary for automatic focus device.

REMOTE FOCUS AVAILABLE

10. **CENTER FRAME.** Center frame of projector is made of aluminum, normalized for temperature stability. Placement of sprockets is such that necessary sensors for automation are readily mounted with adequate clearance.

Provision is incorporated so that when the PRO-35 Projector is used in conjunction with the Ballantyne Model 7 Soundhead, motor drives projector and projector drives soundhead.

Top of center frame will accept all standard manufactured penthouse magnetic soundheads, as well as 2000', 3000', and 6000' magazines.

11. **MAIN DRIVE.** Driving mechanism from bottom of projector to soundhead is synchronous belt driven.

12. **FRAMING LAMP.** Framing lamp is mounted so that adequate illumination of entire aperture is obtained. Lamp is of low voltage and no means of switching is provided.

13. **APERTURE COATING.** Mechanism is designed for air or water cooling. Water circulating plate is a standard part of projector.

14. **CHANGEOVERS.** Low-voltage solenoid and dowser are built into rear shutter mechanism for light changeover and adequate space provided for automation. Low-voltage transformer is built into mechanism for dowser solenoids as well as framing lamp.

